

**United States Department of Interior
Bureau of Land Management
Bakersfield Field Office**

Environmental Assessment

**California Resources Elk Hills, LLC (CREH)
6 APDs in Buena Vista Hills
DOI-BLM-CA-C060-2022-0024-EA
Programmatic Project #124**

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Chapter 1. Purpose and Need for Action

PURPOSE AND NEED

California Resources Elk Hills, LLC (CREH) has submitted six Applications for Permit to Drill (APDs) to drill wells: 603H-1-6D, 658UH-36-6D, 674UH-6-8D, 675H-6-8D, 613H-26-25B, & 613UH-26-25B on federal mineral leases CAS0019577 & CAS0019343 in Sections 6, 8, & 25 of T32S, R24E, MTD. The proposed project would occur on private and public lands containing BLM administered mineral state within the Buena Vista Oilfield. Project implementation would include the grading of new and existing well pad locations, installation of associated power poles and pipelines, and the drilling of six new wells.

The purpose of the proposed action is to respond to the APDs submitted by California Resources Elk Hills, LLC to drill six new oil wells and stage associated facilities required to increase production on federal mineral leases CAS0019577 & CAS0019343.

The need for the action is established by BLM's responsibility under the Mineral Leasing Act of 1920 as amended, the Mining and Minerals Policy Act of 1970, the Federal Land Policy and Management Act of 1976, the National Materials and Minerals Policy, Research and Development Act of 1980 and the Federal Onshore Oil and Gas Leasing Reform Act of 1987 to allow reasonable access to develop a federal oil and gas lease.

This Environmental Assessment (EA) has been prepared in compliance with the National Environmental Policy Act (NEPA) and other relevant federal and state laws and regulations. The purpose of this document is to disclose and analyze the environmental consequences that are anticipated from the grading of new and existing well pad locations, installation of associated power poles and pipelines, and the drilling of six new wells on existing federal mineral leases (CAS0019577 & CAS0019343) in the Buena Vista Oilfield. BLM will decide whether to approve, approve with conditions, or deny the six APDs submitted by CREH.

CONFORMANCE WITH BLM LAND USE PLAN

Title 43 CFR 1610.5 Requires resource management authorizations and actions conform to the approved resource management plan. The proposed action has been reviewed for conformance with the Bakersfield Resource Management Plan approved on December 22, 2014. The BLM has determined the proposed action conforms with the land use plan as the proposed action is specifically provided for in the land use plan objective MM-O-1 "Facilitate reasonable, economical, and environmentally sound exploration and development of leasable minerals while minimizing impacts to other resources" (BLM, 2014; pg 75). The proposed action is located on leases CAS0019577 & CAS0019343, which was issued prior to the 2014 Bakersfield RMP. The 2014 Bakersfield RMP recognizes all valid existing rights (BLM, 2014; pg 1).

RELATIONSHIP TO STATUTES, REGULATIONS AND OTHER PLANS

Oil and Gas Laws and Regulations

The BLM manages lands that contain extractable minerals including oil and gas. These minerals are managed in accordance with the *Mineral Leasing Act* of 1920, as amended; the *Mining and Minerals Policy Act* of 1970; the *Federal Onshore Oil and Gas Leasing Reform Act* of 1987; 43 CFR Part 3160 (including Onshore Orders 1, 2, 6, and 7) and 43 CFR Part 3170; the *Energy Policy Act* of 2005; and other laws, regulations, orders, and also in accordance with all applicable state, county, and local laws and ordinances. BLM requires existing lessees to strictly adhere to all laws, regulations, and policies that govern oil and gas leases, while at the same time recognizing that existing leases grant the lessee certain rights. No additional requirements can be placed on an existing lessee that conflict with the rights already granted, however the lessee may elect to commit to new measures discussed with BLM.

Onshore Order No. 1 identifies the requirements necessary for approving proposed oil and gas exploration, development, and servicing wells on all Federal and Indian oil and gas leases. This includes all components required for the management of fluid minerals including: completed Form 3160-3, well plat, drilling plan, surface use plan, bonding, operator certificate, onsite inspection, processing, reclamation, and Sundry Notices. Onshore Order No. 1 also identifies processing timelines and the valid period of approvals. Onshore Order No. 2 provides requirements and standards for drilling and abandonment. 43 CFR 3173 establishes standards to ensure that oil and gas are properly and securely handled to prevent loss and theft, and to enable accurate measurement and production accountability. 43 CFR 3174 establishes minimum standards for the accurate measurement of all oil. 43 CFR 3175 establishes minimum standards for the accurate measurement of gas. Onshore Order No. 6 provides the requirements and standards for conducting oil and gas operations in an environment known to or expected to contain hydrogen sulfide (H₂S) gas. Last, Onshore Order No. 7 provides the methods and approvals necessary to dispose of produced water associated with oil and gas operations.

Endangered Species Act

The Endangered Species Act of 1973 (ESA) requires federal agencies to complete consultation with the United States Fish and Wildlife Service (FWS) for actions determined that they “may affect” federally listed species or designated critical habitat. The ESA also requires federal agencies to use their authorities to carry out programs for the conservation of endangered and threatened species.

Clean Air Act

The San Joaquin Valley Air Pollution Control District (SJVAPCD) has state air quality jurisdiction over the project area. The SJVAPCD is classified as nonattainment for ozone and PM_{2.5}. The Section 176(c) of the Clean Air Act (CAA), as amended (42 U.S.C. 7401 et seq.) and regulations under 40 CFR part 93, subpart B with respect to conformity of general Federal actions to the applicable State Implementation Plan (SIP) apply to projects within nonattainment and maintenance areas. Under those authorities “no department, agency or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license or permit, or approve any activity which does not conform to an applicable implementation plan.”

Under CAA 176(c) and 40 CFR part 93 subpart B, a Federal agency must make a determination that a Federal action conforms to the applicable implementation plan before the action is taken.

National Historic Preservation Act of 1966, as amended

Section 106 of the National Historic Preservation Act (NHPA) requires agencies to make a reasonable and good faith effort to identify historic properties that may be affected by an agency's undertakings and take those effects into account in making decisions. The BLM process for implementing this NHPA requirement is set forth in the *State Protocol Agreement Among the California State Director of the Bureau of Land Management and the California State Preservation Officer and the Nevada State Historic Preservation Officer (2019)*. Pursuant to 36 CFR 800.8(a), the BLM has taken efforts to coordinate compliance with Section 106 and its implementing regulations at 36 CFR 800 with any steps taken to meet the requirements of the National Environmental Policy Act (NEPA).

Paleontological Resources Preservation Act

This Act was passed as part of the Omnibus Public Lands Management Act of 2009 and requires Interior agencies as well as the Forest Service to manage and protect paleontological resources on Federal land. This includes developing plans for the inventory, monitoring, and scientific and educational use of paleontological resources. The Act also describes criteria for issuing permits to collect and study paleontological resources on Federal land.

Clean Water Act

The Clean Water Act of 1977 establishes authority to regulate any action where pollutants may be discharged into waters of the United States. Section 303 of the federal Clean Water Act requires states to adopt water quality standards that "consist of the designated uses of the navigable waters involved and the water quality criteria for such waters based upon such uses." In California, these water quality standards and the administrative policies and procedures for protecting state waters are disclosed in regional water quality control board basin plans. Hence, California's basin plans serve as regulatory references for meeting both State and federal requirements for water quality control (40 CFR Parts 130 and 131). These basin plans establish standards for ground waters in addition to surface waters, unlike the federal program.

The Clean Water Act also established the National Pollutant Discharge Elimination System (NPDES) permit program, regulating point source discharges of pollutants into waters of the United States. Section 402 of the Clean Water Act provides that storm water discharges associated with industrial activity and construction must be authorized under a NPDES permit. Clearing, grading, and excavation projects that disturb more than one acre are required to obtain a NPDES storm water discharge permit under EPA regulations, though certain regulations such as 40 CFR parts 122.26 (a)(2), (e)(8), and (c)(1)(iii) codify exemptions for oil and gas operations. However, in California, oil and gas operations are not required to obtain a storm water discharge permit (Construction General Permit Order 2009-0009-DWQ) under the authority of the Clean Water Act and the Code of Federal Regulations. This does not exempt oil and gas operations from section 404 of the Clean Water Act, which establishes the authority to issue permits for dredged or fill material.

Also, the State may exempt specific aquifers from particular beneficial use designations if the aquifer meets certain criteria, such as high TDS, contamination, low yield, and regulation as a geothermal energy source or exemption for the purpose of underground fluid injection pursuant to 40 CFR, Section 146.4 (CRWQCB – CVR, 2004).

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) of 1974 regulates the nation's public drinking water supply to protect public health. SDWA authorizes the U.S. EPA to set national health-based standards for drinking water to protect against both naturally-occurring and man-made contaminants that may be found in drinking water.

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) of 1976 establishes a regulatory structure for the management and disposal of solid and hazardous wastes. Solid wastes consist of any discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities. Solid wastes include both hazardous and nonhazardous waste. A waste may be considered hazardous if it is ignitable, corrosive, reactive, or contains certain amounts of toxic chemicals. Subtitle C of the RCRA creates a cradle-to-grave management system for hazardous waste, governing the generation, transportation, treatment, storage, and disposal of hazardous wastes. Subtitle D regulates the management of nonhazardous solid waste, establishing minimum federal technical standards and guidelines for state solid waste plans in order to promote environmentally sound management of solid waste.

Oil and gas exploration and production (E&P) wastes that are intrinsically derived from primary field operations are exempt from Subtitle C hazardous waste regulations, although Subtitle D, other federal regulations, and state regulations still apply. Exempt E&P wastes include any produced fluids or waste otherwise generated by contact with the oil and gas production stream during the removal of produced water or other contaminants from the product. Some specific E&P wastes designated as exempt include produced water, drilling fluids, drill cuttings, rig-wash, work-over wastes, and well completion, treatment, and stimulation fluids. Examples of non-exempt wastes include unused fracturing fluids or acids, waste solvents, used equipment lubricating oils, and caustic or acid cleaners.

Chapter 2. Proposed Action and Alternatives

ALTERNATIVE 1: PROPOSED ACTION

California Resources Elk Hills, LLC (CREH) has submitted six Applications for Permit to Drill (APDs) to drill wells: 603H-1-6D, 658UH-36-6D, 674UH-6-8D, 675H-6-8D, 613H-26-25B, & 613UH-26-25B on federal mineral leases CAS0019577 & CAS0019343 in Sections 6, 8, & 25 of T32S, R24E, MTD. The proposed project would occur on private and public lands containing BLM administered mineral state within the Buena Vista Oilfield. Project implementation would include the grading of new and existing well pad locations, installation of associated power poles and pipelines, and the drilling of six new wells (**Figures 1, 2, & 3**).

603H-1-6D and 658UH-36-6D

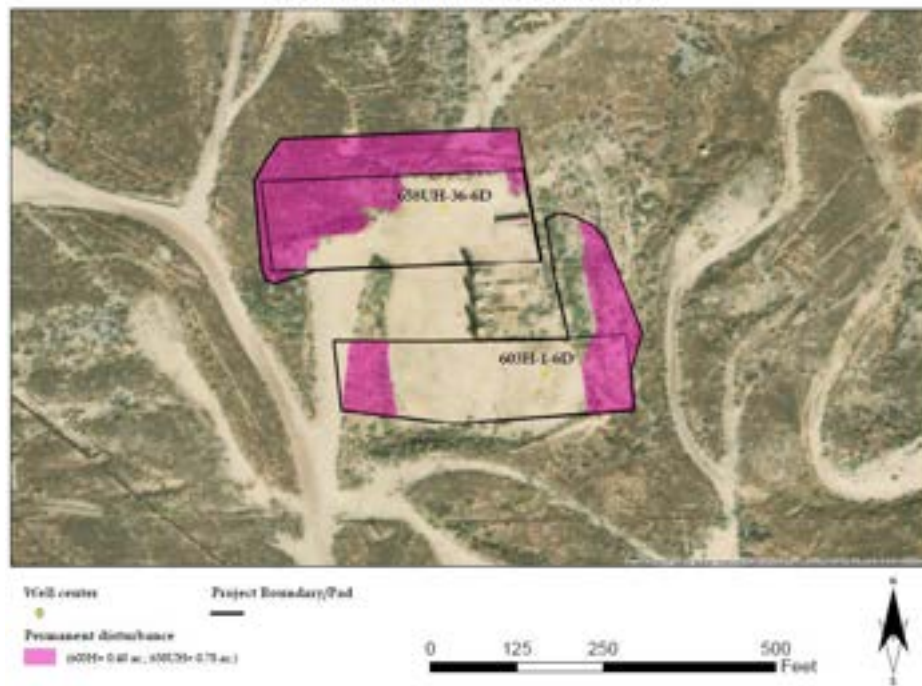


Figure 1.

674UH-6-8D and 675H-6-8D

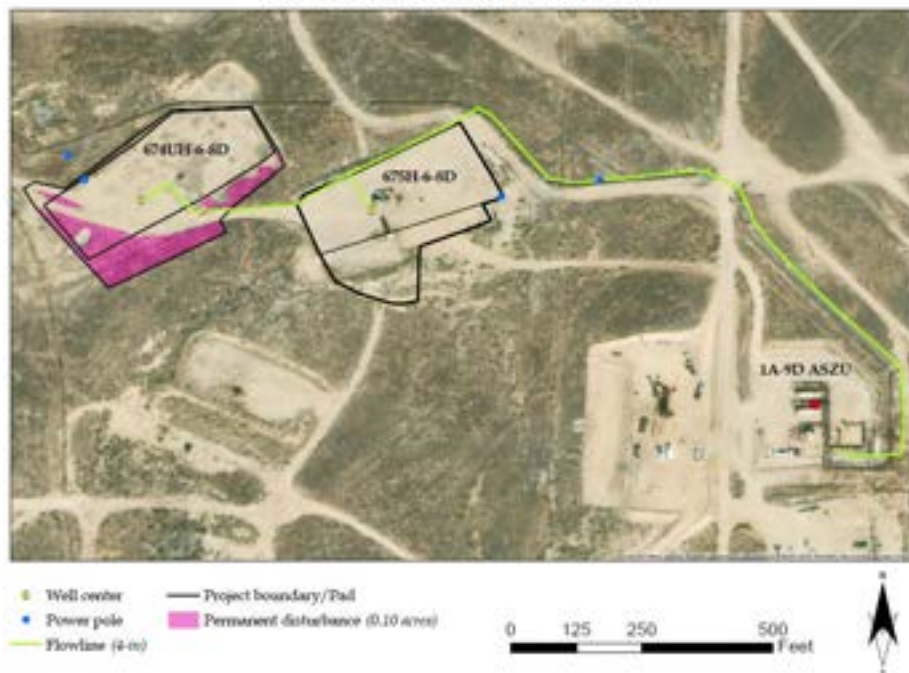


Figure 2.

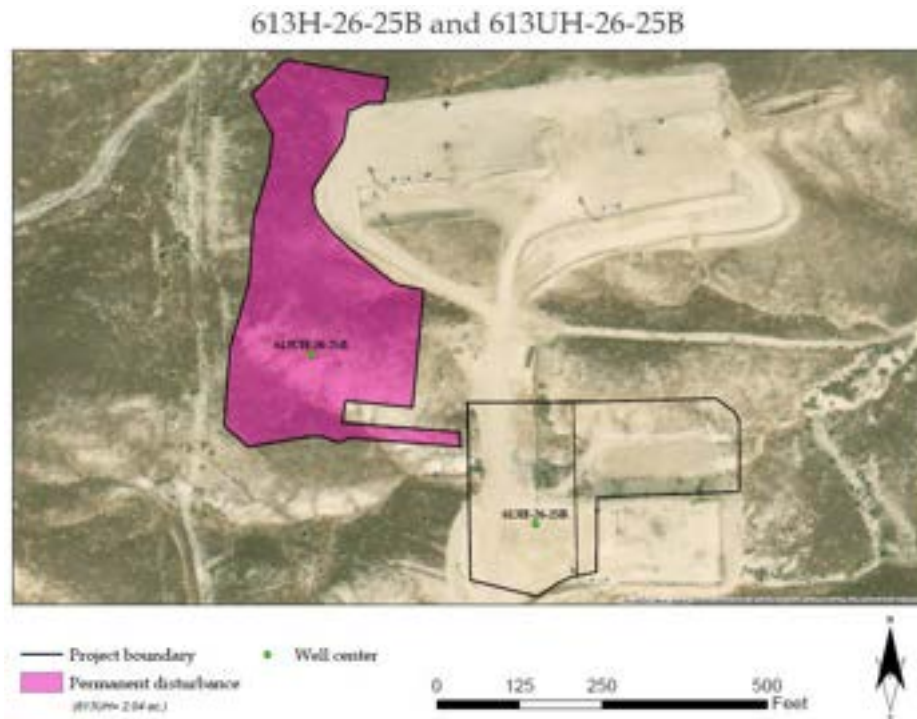


Figure 3.

CREH would be restricted to use of existing roads and approved areas of disturbance, including those approved with the APDs, during and following project implementation. During construction, CREH proposes to place all drilling equipment and materials on the proposed well pad locations. The pad would be cleared of unnecessary items following well completion.

Approximately 6,857 barrels (288,000 gallons) of fresh water would be used for dust abatement and drilling per well; all water would be obtained from the West Kern Water District and trucked to the project site. Fresh water would be applied to the surface for dust abatement and used during the drilling phase for intermediate/production casing, stimulation, and surface casing.

Produced fluid associated with the proposed wells will be treated at the Buena Vista Hills reclaimed water system (owned and operated by CREH) located at Section 36B facility (T31S, R23E) for processing. Processing can include de-oiling, biocide treatment, & filtration. The processed reclaimed water will be injected into Class II wells in accordance with CREH's underground injection permits under UIC project numbers #08006022, #08006020, or #08006009

CREH has attached a copy of the NOA (Notice of Applicability) of Water Quality Order 2003-0003-DWQ issued by the regional water board. CREH will not be disposing of drilling water off-site. All drilling water will be contained within the permitted drilling sump. Drilling water will be allowed to evaporate prior to sump closure activities. The sump will be closed in accordance with the NOA.

Non-hazardous, water-based mud would be used in drilling operations. All cuttings and drilling fluids would be collected in a reserve pit measuring 250 feet by 30 feet and 13 feet in depth. Fluids would be solidified and cuttings will remain in the reserve pit. Prior to pit closure testing would be conducted, and all operations would be in compliance with all Federal, Tribal, State, and local laws and requirements.

Well failures are not anticipated in the new wells proposed in the Buena Vista oilfield. CREH proposes to use current best available technologies to drill and complete the proposed wells; modern controls and monitoring will be in place to prevent failures of mechanical well integrity. All aspects of well completions and design are conducted according to American Petroleum Institute standards whereby specifications and recommended practices are detailed to ensure mechanical well integrity.

The Buena Vista field does not have any protected groundwater, but efforts are still made to insure well integrity. The Tulare aquifer, which is exempt, is isolated from the contents of the well during drilling and production operations by a combination of steel casing and cement sheaths, and other mechanical isolation devices installed as a part of the well construction process. The impermeable rock formations that lie between the hydrocarbon producing formations and the Tulare have isolated the hydrocarbon accumulation over millions of years. The construction of the well is done to prevent communication (the migration and/or transport of fluids between these subsurface layers).

The primary method used for isolating the Tulare during drilling operations consists of drilling the wellbore through the exempt aquifer, immediately installing a steel pipe (called casing), and cementing this steel pipe into place. All state drilling regulations specifically address groundwater protection, including requirements for the surface casing to be set below the lowest groundwater aquifer. The steel casing isolates the zones from material inside the wellbore during subsequent drilling operations and, in combination with other steel casing and cement sheaths that are subsequently installed, isolates the groundwater with multiple layers of protection for the life of the well.

The subsurface zone or formation containing hydrocarbons produces into the well, and that production is contained within the well all the way to the surface. This containment is what is meant by the term “well integrity.” Moreover, regular monitoring takes place during drilling and production operations to ensure that these operations proceed within established parameters and in accordance with the well design, well plan, and permit requirements.

CREH has stated that there are no plans to conduct well stimulation activities regulated by California Senate Bill No. 4 (hydraulic fracturing, matrix or fracture acidization) on the proposed well because the reservoir characteristic and geologic rock properties in the Antelope formation within the project area do not require well stimulation to produce.

Design Features/Additional Conditions of Approval (COAs) for Surface

The following Design Features and conditions of approval are part of the proposed action:

CREH shall comply with all applicable Federal, Tribal, State, and local laws during project implementation.

Biological Resources

This project would be covered as project #124 under the 2017 Oil and Gas Programmatic Biological Opinion (08ESMF00-2016-F-0683). The 2017 Oil and Gas Programmatic Biological Opinion provides take coverage for authorization of individual projects occurring on surface and subsurface lands administered by the BLM in Kings and Kern Counties that disturb less than 10 acres of habitat or that encompass linear actions less than 10 miles long. This project occurs in Kern County and disturbs 3.363 acres of habitat, thus satisfying both requirements for coverage under the 2017 Oil and Gas Programmatic Biological Opinion. Compliance with the Project Specific Provisions (**Attachment 1**) of this Opinion is required. **A preliminary estimate of compensation is 11.474 compensation acres (3.363 permanent acres compensated at 3:1 = 10.089 + 1.385 replacement acres).**

In addition, CREH shall comply with all of the “Avoidance & Mitigation Actions” recommended by consulting Biologist by Kimberly Fiehler (West Kern Environmental Consulting, LLC) in her October 28th, 2021 Sensitive Species Review Form:

1. A biological monitor will be present during initial ground disturbance and will be on-call and notified (661) 448-3131 if listed species are observed in the project area subsequent to initial ground disturbance.
2. A Threatened and Endangered Species training session will be given to construction personnel prior to project implementation.
3. A pre-activity survey shall be conducted on the project site within 14-days of project construction. Should a potential kit fox den be observed during the 14-day pre-construction survey, CRC will implement monitoring measures based on guidelines in the USFWS Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance (USFWS 2011).
4. Project site boundaries shall be clearly delineated by stakes, flagging and/or rope to minimize inadvertent degradation or loss of adjacent habitat during well pad and pipeline installation activities.
5. All construction equipment, staging areas, material and personnel shall be restricted to previously disturbed areas (roads, well pads, and other non-habitat areas).
6. All construction pipes, culverts, or similar structures stored at the construction site overnight having a diameter of two (2) inches or greater shall be inspected thoroughly for wildlife species before being buried, capped, or otherwise used or moved in any way. Pipes laid in trenches overnight shall be capped. If during construction a wildlife species is discovered inside a pipe, that section of pipe shall not be moved or, if necessary, moved only once to remove it from the path of construction activity, until the wildlife species has escaped.
7. A speed limit of 10 mph (MAX) will be enforced to avoid incidental take of wildlife along roadways.

8. All excavated steep-walled holes or trenches in excess of three feet in depth left open for more than one (1) workday shall be provided with one or more escape ramps constructed of earth fill or other material to prevent entrapment of endangered species or other animals. Ramps shall be located at no greater than 1,000-foot intervals (for pipelines etc.) and at not more than 45-degree angles. Trenches shall be inspected for entrapped wildlife each morning prior to onset of construction activities and immediately prior to the end of each working day. Before such holes or trenches are filled, they shall be inspected thoroughly for entrapped animals. Any animals discovered shall be allowed to escape voluntarily without harassment before construction activities resume or removed from the trench or hole by a qualified biologist and allowed to escape unimpeded.
9. All food related trash such as wrappers, cans, bottles, and food scraps shall be disposed of into closed containers and be removed daily from the site.
10. Feeding of wildlife is strictly prohibited.
11. CRC staff and/or its contractors should designate a specific individual as a contact representative between CRC and all applicable federal, state, and local agencies to oversee compliance with these avoidance mitigation measures.
12. Firearms are prohibited on site.
13. Pets are prohibited on site.
14. Follow BLM General Guidelines for Conserving Habitat and Minimizing Project Impacts.

Cultural Resources

In the event of inadvertent discovery of cultural resources during project implementation, personnel responsible for the project shall immediately notify the BLM Bakersfield Field Office Cultural Resource Staff and Field Manager (661-391-6000). All work at the site of discovery, and in any other locations where damage to the discovery could occur, shall cease until written approval is received from the BLM.

If human remains are inadvertently discovered on BLM surface land, all activity will immediately cease surrounding the unanticipated discovery. The holder will ensure that the discovery is secured and protected and will immediately notify the BLM Field Manager (661-391-6000). The BLM will adhere to current regulations regarding the treatment of human remains (Native American Graves Protection and Repatriation Act, 43 CFR 10). Access and use of the area can proceed with written approval from the Field Manager once the appropriate level of review has been determined and completed.

Paleontological Resources

This project is located on BLM surface lands, and the area has been designated as Potential Fossil Yield Classification (PFYC) of 4, the Tulare formation, and PFYC U (Unknown), old alluvial fan deposits. Class 4 formations are highly likely to contain vertebrate fossils or scientifically significant invertebrate fossils, while the likelihood for PFYC U is unknown. A paleontological survey (6000-2016-34P) has provided a monitoring and mitigation strategy for the BVH MDP area (attached to COAs).

In the event of inadvertent discovery of paleontological resources during project implementation, the BLM Field Office Paleontological Staff and the BLM Field Manager (661-391-6000) shall be

immediately notified by personnel responsible for the project. All work at the site of discovery, and in any other locations where damage to the discovery could occur, shall cease until written approval by the BLM.

Construction and Interim Reclamation

Reclamation activities will be initiated in the fall, starting no earlier than October to maximize use of the wet season. All reclamation areas will be monitored for a minimum of five years, or until the BLM determines the locations have been successfully reclaimed. Reclamation progress will be reviewed annually in the fall season to determine if additional re-seeding activities are required or if fencing and signage need to be repaired.

All permanent above-ground structures (e.g., production equipment, etc.) not subject to safety requirements shall be painted to blend with the natural color of the landscape. The paint used will be a color which simulates “Standard Environmental Colors.” The colors selected for the project location are Covert Green or Carlsbad Canyon.

At the beginning of construction, topsoil (approximately the top four inches of soil) shall be removed from the project area and stockpiled on an existing pad or previously disturbed surface in close proximity to the project site. Subsequent to well completion, topsoil will be re-applied to the cut and fill slopes, as well as the sump. “Well completion” is a technical term used to describe the final phase of well drilling; “well completion” is not synonymous with the final phase of project implementation. Prior to applying topsoil to the sump, it will be cleaned, ripped to a minimum depth of 12 inches, and re-contoured to match the surrounding topography. Remaining topsoil will be stockpiled on an existing well pad or other previously disturbed surface and retained for future reclamation. Topsoil will be retained for no more than one year.

All practicable measures will be taken to minimize erosion and stabilize disturbed soils. The following types of interim stabilization or similar methods may be used if necessary: jute netting, hydro-mulch, straw wattles, or crimped straw mulch.

Management of Noxious Weeds

A site-specific weed control Environmental Assessment (EA) and a Pesticide Use Permit (PUP) must be completed before any use of pesticides on BLM lands. This can be a lengthy process and requires specific information, public notification, and review by the BLM State Office. Currently, the applicant does not have these approvals in place. Therefore, no herbicide treatment is authorized at this time.

Final Reclamation

Disturbed lands shall be re-contoured to conform with existing undisturbed topography unless the BLM determines that re-contouring would result in negative impacts to special status species. No

depressions shall be left that trap water or form ponds. All portions of final reclamation may be subject to additional cultural resources and paleontological inventory and may require a permit. The reclaimed landscape shall have characteristics that approximate the visual quality of the adjacent area with regard to location, scale, shape, color and orientation of major landscape features and meet the needs of the planned post disturbance land use.

Final reclamation shall specifically achieve the following:

1. The reclaimed area shall be stable and exhibit none of the following characteristics:
 - a. Large rills or gullies (greater than 6 inches deep).
 - b. Perceptible soil movement or head cutting in drainages.
 - c. Slope instability on, or adjacent to, the reclaimed area in question.
2. The soil surface must be stable and have adequate surface roughness to reduce runoff and capture rainfall and snow melt. Additional short-term measures, such as the application of mulch, shall be used to reduce surface soil movement.
3. Vegetation production and species diversity (including shrubs) shall approximate the surrounding undisturbed area (50-150% of the adjacent species composition and cover). The vegetation shall stabilize the site and support the planned post disturbance land use, provide for natural plant community succession and development, and be capable of renewing itself. This shall be demonstrated by:
 - a. Successful onsite establishment of species included in the planting mixture or other desirable species.
 - b. Evidence of vegetation reproduction, either spreading by rhizomatous species or seed production.
4. Habitat Restoration
 - a. Restoration will be required on unused portions, including abandoned, unused, or unnecessary roads, of the project area or oil and gas lease when deemed necessary by the BLM to maintain or improve habitat values. Restoration will be required when reserve area (Red Zone) and habitat corridor (Green Zone) limits are exceeded and when a project or lease is abandoned. Restoration activities will be supervised by an onsite monitoring biologist.
 - b. The following are examples of actions that may be required as part of restoration:
 - i. All trash will be removed from the site and disposed of properly.
 - ii. All cement, asphalt, and oil-contaminated soils will be removed from the site and disposed of properly.
 - iii. All pipelines and other oilfield infrastructure no longer in use will be removed from the site and disposed of properly.
 - iv. Topographic contours will be restored to the maximum extent possible.
 - v. Non-compacted soils or areas previously deep ripped will be disked to a depth of approximately 8 inches.

- vi. Compacted sites will be deep ripped to a depth of 12 to 18 inches.
- vii. Slopes greater than 30 per cent will be treated by erosion control methods such as disking along the contour, imprinting, mulching, or installing wattles.
- viii. Sites will be seeded using methods such as drill or broadcast seeding with a site-appropriate seed mix, approved by the BLM Botanist. Exact seeding mixes and rates will depend on the site characteristics, the species chosen, and the current availability of native seed. Seed mixes will include dominant shrubs and native grasses and herbs compatible with the adjacent plant community. The best time for seeding is generally late summer to early fall prior to the onset of the rainy season.
- ix. Sites will be considered restored when it can be documented that they support functional, native habitat. Evidence of attainment of this goal will be provided by the project applicant. Restoration in drainages, streambeds, and similar habitats where water is a substantial component may require conformance with conditions of a CDFW Streambed Alteration Agreement or other state or local permit. Demonstration of restoration may include documentation of:
 - 1. Visual continuity or similarity with adjacent native, undisturbed habitat or a designated reference site.
 - 2. Topography that follows natural contours and allows for the natural flow of water across the landscape.
 - 3. Indiscernible boundary lines or areas between the disturbed and undisturbed areas.
 - 4. Presence of habitat that supports threatened and endangered species.
 - 5. Vegetation community composition within the normal or desired range. Ratios of native and non-native plants within normal or desired parameters. Presence and abundance of reproducing plants. Presence and abundance of biological soil crusts.
 - 6. Evidence or presence of animals or animal sign on the site. Presence and abundance of desired species. Evidence, presence, and abundance of reproducing species.
 - 7. Evidence of species diversity for both plants and animals.
 - 8. Evidence of soil stability (minimal erosion).
 - 9. Absence of signs of vehicle or other trespass. Absence of trash and contaminated soils.

ALTERNATIVE 2: NO ACTION

Under this alternative, BLM would not approve the 6 APDs, submitted by CREH. By denying the application, the operator would be denied the opportunity or right to develop and produce federal

mineral leases CAS0019577 & CAS0019343 in Sections 6, 8, & 25 of T32S, R24E, MTD, MDBM in the Buena Vista Oilfield.

Chapter 3. Affected Environment

This chapter briefly describes the physical and regulatory environment for elements that may be affected by the proposed action.

The following elements of the human environment were considered but determined to be either not present or unaffected by the proposed action and will therefore not be addressed further in this analysis:

- This project location does not occur within a designated Area of Critical Environmental Concern or within National Conservation Lands.
- The project does not contain essential fish habitat, and there are no wetlands or riparian zones in the project area.
- The project would not disproportionately affect low income or minority populations.
- The proposed project would not affect recreational experience as it occurs within a BLM administered oil and gas lease that does not currently attract recreational use, nor is it anticipated to attract significant recreational use in the future.
- Visual resources would not be impacted since the project occurs within a Class IV Visual Resource Management area that is not visible from any main access road or highway and is not likely to attract attention.
- Cultural resource surveys were conducted for all areas which could be potentially affected by the proposed project (BLM Cultural Resource Inventory Report # CA-160-C/V-770). No cultural resources were identified in the Area of Potential Effect (APE). The proposed work will not impact cultural resources.
- Certified Letters and associated follow-up emails were sent to the Tribal Chairman and staff contacts for tribes known to be affiliated with the lease and project area for the BVH MDP (TNL 16-17) and 2 specific proposed wells on split estate (TNL 21-21). No responses were received. No Tribal sites of religious or cultural significance were identified.
- The project area occurs in a geological formation that has been designated as a Potential Fossil Yield Classification (PFYC) Class 4, Tulare formation, as well as PFYC U (Unknown), old alluvial fan deposits. Class 4 Formations are likely to contain vertebrate fossils or scientifically significant invertebrate fossils, while Class U formations are unknown for their potential to contain these fossils; CRC has requested that the San Diego Natural History Museum – Paleontological Department provide mitigation and monitoring as per BLM Paleontological Resources Inventory Report # 6000-2016-34P for the four wells on federal surface estate (attached to Conditions of Approval [COAs]). The two wells on split estate (private surface, federal mineral) are on CRC landowner surface estate, and CRC has waived paleontological monitoring and mitigation for these two wells (613H-26-25B & 613UH-26-25B).

Issues for detailed analysis

- How would emissions generated by construction activities (e.g. generation of dust, burning of diesel) and subsequent operation of the well impact air quality?
- How would emissions generated by construction activities, subsequent operation of the well, and downstream use of the produced petroleum contribute to increases in GHGs (CO₂e) impact climate change?
- How would construction activities (e.g. drill rig noise, vehicle traffic), ongoing operations (e.g. vehicle traffic) and habitat disturbance impact threatened and endangered species?
- How would construction activities (e.g. grading, drilling) impact soil productivity and erodibility?
- How would drilling through aquifers impact drinkable groundwater? How would construction and operations activities (potential for erosion, sediment carry, spills and leaks) impact surface water? How would the use of water for drilling and dust abatement impact availability of fresh water for other beneficial uses?

Air Quality

The proposed project area is located in Kern County, California, and within the San Joaquin Valley Air Basin. At the state level, air regulatory duties lie with the California Air Resources Board (CARB) and at the federal level with the U.S. Environmental Protection Agency (EPA), Region IX. Oversight and rulemaking authority for air quality matters in California have been delegated to the county (District) level. The BLM has air program responsibilities through its permitting programs and Clean Air Act (CAA) requirements to analyze all actions for conformity to air quality plans.

The federal Clean Air Act (CAA), as amended, and the California Clean Air Act (CCAA) contain the primary provisions relating to air quality. Provisions of the federal CAA that apply to BLM actions include the National Ambient Air Quality Standards (NAAQS), nonattainment area designation, the development of state implementation plans (SIPs), prevention of significant deterioration (PSD), air toxics, and federal conformity. The EPA, CARB, and regional air districts have issued rules to implement federal and state Clean Air Acts.

EPA uses “criteria pollutants” as indicators of air quality and has established for each of them a maximum concentration above which adverse effects on human health and the environment may occur. These threshold concentrations are called National Ambient Air Quality Standards (NAAQS) (<https://www.epa.gov/criteria-air-pollutants>). One set of limits (primary standard) protects health; another set of limits (secondary standard) is intended to prevent environmental and property damage. Under the federal CAA, the EPA has established NAAQS for seven criteria pollutants: ozone, respirable particulate matter (PM₁₀), fine particulate matter (PM_{2.5}), carbon monoxide, nitrogen dioxide, lead, and sulfur dioxide. California has established state Ambient Air Quality Standards for the same criteria pollutants, plus an additional three pollutants (visibility reducing particulates, sulfates, and hydrogen sulfide). States may have standards that are more restrictive than the federal thresholds, but they cannot be less restrictive. Although more stringent, the State standards have no specific dates for attainment, unlike federal standards. Under State law, designations are made by pollutant, rather than by averaging time. A geographic area that

meets or exceeds the primary standard is called an attainment area; areas that do not meet the primary standard are called nonattainment areas (<https://www.epa.gov/clean-air-act-overview>).

Federal air quality standards for PM_{2.5} and ozone have been exceeded in the San Joaquin Valley air basin due to local and transported pollutants. This has resulted in the current designation of the air basin as a federal non-attainment area for PM_{2.5} and ozone under the NAAQS. The air basin has recently been designated as a federal maintenance area for PM₁₀. Based on the EPA 2010 designations, the primary pollutants of concern in the Project area are 8-hour ozone, PM₁₀, and PM_{2.5}. The remaining criteria pollutants are either unclassified or in attainment with the NAAQS.

The proposed project area is within the EPA Pacific Southwest Region 9 Planning Area; a State Implementation Plan (SIP) has been prepared for the planning area, which identifies sources of emissions and control measures to reduce emissions. In 2016, CARB updated the State Strategy for achieving emissions reductions toward bringing these areas into attainment with federal standards for ozone and PM_{2.5}. A San Joaquin Valley Supplement to the 2016 State Strategy was adopted in October 2018. The SIP mainly addresses stationary sources that have been identified as major contributors affecting regional air quality, such as power plants, facilities, etc.

District air quality plans that have recently been adopted and are relevant to the proposed Project include the *SJVAPCD 2016 Ozone Plan*, *2013 Plan for the Revoked 1-Hour Ozone Standard*, *2018 PM_{2.5} Plan*, and *2007 PM₁₀ Maintenance Plan*. These plans outline the strategy for achieving federal air quality standards by specific dates and identify control measures to reduce criteria pollutant emissions. Control measures identified in the *2007 Ozone Plan* reduce ozone precursor emissions, NO_x and Volatile Organic Compounds (VOCs). Particulate matter attainment strategies include control measures to reduce dust from unpaved roads and construction activities.

CAA regulations also address the release of hazardous air pollutants (HAPs): chemicals that are known or suspected to cause cancer or other serious health effects, such as reproductive effects, birth defects, or adverse environmental effects. Some compounds of this type are regulated as Toxic Air Pollutants (TAPs) by the State of California. EPA currently lists 189 compounds as HAPs, some of which, such as benzene, toluene, and formaldehyde, can be emitted from oil and gas development operations. NAAQS have not been set for HAPs; rather HAP emissions are controlled by source type- or industrial sector-specific regulations. Hydrogen sulfide (H₂S) gas is not regulated under the NAAQS or as a HAP. However, it is known to be hazardous, and is monitored for health and safety at oil and gas sites.

Applicable SJVAPCD Rules to Implement Air Quality Plans

Once air quality attainment demonstration Plans are adopted, the reductions necessary to meet the respective reduction mandates contained in the Plan(s) are achieved through prohibitory rules created and enforced by the local air quality board/APCD. Compliance with applicable Rules, Regulations, and land use and zoning requirements ensures continued movement towards achieving the SJVAPCD attainment goals. Examples of SJVAPCD rules that may be applicable to the proposed project are described below.

Rule 2280 (Portable Equipment Registration): Certain portable emissions units would be required for well drilling, service or workover rigs, pumps, compressors, generators, and field flares.

Rule 4101(Visible Emissions): The purpose of this rule is to prohibit the emissions of visible air contaminants to the atmosphere.

Rule 4401 (Steam-Enhanced Crude Oil Production Wells): The purpose of this rule is to limit the VOC emissions from steam-enhanced crude oil production wells.

Rule 4402 (Crude Oil Production Sumps): The purpose of this rule is to limit VOC emissions from sumps.

Rule 4623 (Storage of Organic Liquids): The purpose of this rule is to limit VOC emissions from the storage of organic liquids.

Regulation VIII (Fugitive PM₁₀ Prohibitions): The purpose of Regulation VIII is to reduce ambient concentrations of particulate matter (PM₁₀) by requiring actions to prevent, reduce, or mitigate anthropogenic fugitive dust emissions. Regulation VIII rules pertinent to the proposed project include, but are not limited to, the following:

Rule 8021 (Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities): This rule limits fugitive dust emissions (PM₁₀) from construction, demolition, excavation, extraction, and other earthmoving activities. This rule applies to any such activity and other earthmoving activities, including, but not limited to, land clearing, grubbing, scraping, travel on-site, and travel on access roads to and from the site.

Rule 8031 (Bulk Materials): The purpose of this rule is to limit fugitive dust emissions from the outdoor handling, storage, and transport of bulk materials.

Conformity Determination

The classification of any area as a federal nonattainment and/or maintenance area brings an additional requirement for federal agencies. Section 176(c) of the CAA, as amended (42 U.S.C. 7401 et seq.), and regulations under 40 CFR, part 93, subpart B, state that “no department, agency or instrumentality of the federal Government shall engage in, support in any way or provide financial assistance for, license or permit, or approve any activity which does not conform to an applicable implementation plan.” This means that under the CAA 176(c) and 40 CFR, part 93, subpart B (conformity rules), federal agencies must make a determination that proposed actions in federal nonattainment areas conform to the applicable EPA approved implementation plans (if pertinent) before the action is taken.

Climate Change

Global climate change is the term commonly used to refer to any significant change in measures of climate (such as temperature, precipitation, or wind) lasting for an extended period (decades or longer). Emissions of GHGs such as carbon dioxide and its equivalents (methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) are known to contribute to the global phenomenon of climate change. Based on research conducted by the Intergovernmental Panel on Climate Change (IPCC), evidence suggests a strong, consistent, positive linear relationship between GHGs and temperature, changes in precipitation patterns, oceanic warming,

oceanic acidification, and reductions in Arctic sea ice. In addition, species extinction, threats to food security, and threats to human health are predicted. In general, “Climate change will amplify existing risks and create new risks for natural and human systems” (IPCC, 2014).

In the last decade, increased GHGs are believed to have resulted in increases in global temperature and other climate change effects never previously recorded. Data show that the earth’s average surface temperature has increased by about 1.2 to 1.4 degrees Fahrenheit in the last 100 years. The current scientific consensus holds that emissions from human activities have resulted in much higher concentrations of GHGs in the atmosphere than would be expected to occur naturally.

The oil and gas enterprise worldwide is responsible for a large fraction of the total GHGs emitted to the atmosphere. By far the largest factor in these emissions is burning the fuel, not producing it (CCST, 2014). Anthropogenic activity globally results in approximately 49,000 million metric tons of carbon dioxide equivalent (MMTCO_{2e}) of annual GHG emissions (IPCC, 2014), and the U.S. GHG inventory for 2017 was 6,457 MMTCO_{2e} (USEPA, 2019), or roughly 12 percent of the global emissions. Oil and gas production across the United States results in about 176 MMTCO_{2e} in 2017 (USEPA, 2019). This amount is 47 percent greater than in 1990. For comparison, about 17 MMTCO_{2e} of annual GHG emissions resulted from oil and gas extraction and processing before refining in California in 2017 (ARB, 2019).

Applicable Federal, State, and Local Regulations to Reduce Impacts of Oil and Gas Production on Climate Change

On April 17, 2012, EPA issued Final Air Rules to reduce harmful air pollution from the oil and natural gas industry. In addition, EPA issued final updates to its 2012 VOC performance standard for storage tanks used in crude oil and natural gas production and transmission on August 5, 2013. In addition, on May 12, 2016, EPA issued final rules to reduce emissions of methane, smog-forming volatile organic compounds, and toxic air pollutants from new, reconstructed and modified oil and gas sources; these final rules established updates to the New Source Performance Standards (NSPS) and the Source Determination Rule. The EPA also requires reporting of greenhouse gases from large GHG emissions sources in the United States through the Greenhouse Gas Reporting Program (GHGRP) (EPA, 2020).

The California Legislature passed the California Global Warming Solutions Act of 2006 [Assembly Bill 32 (AB 32)], creating a comprehensive, multi-year program to reduce greenhouse gas emissions in California. AB 32 requires the reporting of GHGs by major sources, applicable to industrial facilities, fuel suppliers, and electricity reporters. In 2005 and 2015, California Governors issued Executive Orders establishing mid-term and long-term GHG reduction targets for California of 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050 (CARB, 2020).

In August 2008, San Joaquin Valley Unified Air Pollution Control District (SJVAPCD) adopted the Climate Change Action Plan (CCAP), which directed the District to develop guidance to assist Lead Agencies, project proponents, permit applicants, and interested parties in assessing and reducing the impacts of project specific GHG emissions on global climate change (SJVAPCD, 2016). SJVAPCD has developed *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA and District Policy Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA*, intended to be applied to CEQA analysis.

Although these policies are only available for CEQA analyses, the air district guidance may be generally applied by land-use agencies for reference. BLM concludes that the SJVAPCD requirement to quantify GHG emissions and to implement SJVAPCD Best Performance Standards to reduce GHG emissions would occur at the APD or Sundry stage, to be analyzed in a site-specific NEPA analysis. Therefore, this environmental assessment includes an analysis of GHG emissions for the proposed action.

Biological Resources

The project is proposed on private and public surfaces that occur nearby and within the Conserved Lands described in the Bakersfield Resource Management Plan, which directs public lands within reserve areas (Red Zones) and habitat corridors (Green Zones) to be managed with disturbance limitations. Reserve areas are managed with a 10% disturbance limit and habitat corridors are managed with a 25% disturbance limit. This proposed project is located within both the Green Zone habitat corridor and Red Zone reserve area, meaning the land is inside of the strategy for the recovery of listed species in the southern San Joaquin Valley. Compensation acres will be required for this project, but replacement acres will not.

The Conserved Lands goal is to maintain suitable amounts of habitat largely undisturbed by development activities. Limiting the amount of habitat (and ground) disturbance allows sufficient habitat to remain intact, keep ecosystem processes functioning properly, and connect viable species populations across the landscape (see Bakersfield Proposed RMP/Final EIS, Appendix B, pp. 771-775).

Federally listed plant species in the southern San Joaquin Valley include Kern mallow (*Eremalche kernensis*), San Joaquin woolly-threads (*Monolopia congdonii*), California jewelflower (*Caulanthus californicus*), Hoover's woolly-star (*Eriastrum hooveri*; delisted in 2003 but covered under the 2017 Oil and Gas Programmatic BO), and Bakersfield cactus (*Opuntia basilaris* var. *treleasei*). Listed animal species include San Joaquin kit fox (*Vulpes macrotis*), blunt-nosed leopard lizard (*Gambelia sila*), giant kangaroo rat (*Dipodomys ingens*), and Tipton kangaroo rat (*Dipodomys nitratoideus*). Additionally, this region contains the State listed San Joaquin antelope squirrel (*Ammospermophilus nelsoni*). A field survey to identify the potential for the occurrence of these listed species in the general project area was conducted by Kimberly Fiehler (West Kern Environmental Consulting, LLC) on October 22th, 2022. A project specific onsite inspection was completed by BLM Natural Resource Specialist Fernando Baños on December 16th, 2021.

In general, the proposed project location is occupied by non-native annual grassland and valley saltbush scrub habitat that is moderately developed by oilfield infrastructure. There is no critical habitat for any threatened or endangered species on the project site or in the vicinity. Dominant species include red brome (*Bromus madritensis* ssp. *rubens*), fiddleneck (*Amsinckia menziesii*), and moderately dense allscale (*Atriplex polycarpa*). Kern mallow, San Joaquin woolly-threads, Hoover's woolly-star, California jewelflower, and Bakersfield cactus were not observed in the

project area. California jewelflower is not known to naturally exist in Kern County, and Bakersfield cactus is endemic to a limited area of central Kern County in the vicinity of Bakersfield.

The biological surveys found no evidence of giant kangaroo rat (*Dipodomys ingens*) or Tipton kangaroo rat (*Dipodomys nitratoide nitratoide*) in the vicinity of the project sites. There are CNDDDB records that indicate presumed extant populations of giant kangaroo rat less than a mile from the individual project locations. CNDDDB records indicate a presumed extant population of short-nosed kangaroo rat (*Dipodomys nitratoide brevinasus*) within the project footprint and surrounding area in the Buena Vista Hills. The short-nosed kangaroo rat is listed as a California State Species of Special Concern and a Bureau of Land Management Sensitive Species.

Several San Joaquin antelope squirrel (*Ammospermophilus nelsoni*) were observed during the field surveys. Individuals were observed on the proposed well pad locations, the access roads, and proposed pipeline routes. CNDDDB records indicate a presumed extant population of San Joaquin antelope squirrel (*Ammospermophilus nelson*) within the project footprint and surrounding area in the Buena Vista Hills.

No species specific or protocol level Blunt-nosed leopard lizard (*Gambelia sila*) surveys were conducted for the proposed project. However, no blunt-nosed were observed during any previous protocol level surveys and no individuals were observed during the February 10th and 11th, 2021 field surveys. There are no burrows suitable for use by blunt-nosed leopard lizard within the proposed project site. In addition, there are no CNDDDB records of blunt-nosed leopard lizard within the project footprint, although records indicate a presumed extant population less than a mile northeast of the project locations.

Four potential San Joaquin kit fox (*Vulpes macrotis*) dens were observed within the survey areas, however no individuals or their sign were observed. CNDDDB records indicate a presumed extant population of San Joaquin kit fox within the project footprint and surrounding area in the Buena Vista Hills.

Soil Resources

CREH proposes to construct a new well pad. In general, the soils within the project footprint are undisturbed, except those within and adjacent to the existing access roads. There is one soil map unit present in the project footprint:

- **Bitterwater gravelly sandy loam, 15 to 50 percent slopes (# 117)** – This soil map unit is present on hillslopes. The typical profile of these soils are sandy loam from 0 to 60 inches and weathered bedrock below. These soils are well drained and not designated as prime farmland.

Soil Erosion Factors

Soil Map Unit	K Factor*	Wind Erodibility Group**
Bitterwater gravelly sandy loam, 15 to 50 percent slopes (#117)	0.28 Moderately low	3 Moderately high

*Values of K can range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

**A wind erodibility group consists of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The wind erodibility group provides an indication of how susceptible areas disturbed by construction activities are to wind erosion. Soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.

Water Quality and Quantity

The proposed project is outside the boundary of any groundwater basin established by the California Department of Water Resources, Groundwater Management Bulletin 118. The target formation, Antelope Shale, does not contain an underground source of drinking water. In addition, there is no record of fresh water in the Buena Vista/McKittrick Oilfield – Main Area according to the California Oil and Gas Fields, Volume 1 – Central California Report 1998. There are no perennial rivers, lakes, or streams in the project area. There are no ephemeral blue-line drainages in the direct project footprint and two (2) located north and northeast of the project footprint.

As stated in the Proposed Action, approximately 6,857 barrels (288,000 gallons) of fresh water would be used for dust abatement and drilling; all water would be obtained from the West Kern Water District and trucked to the project site.

Paleontological Resources

Every geologic unit can be assigned a Potential Fossil Yield Classification (PFYC) class based on the probability and abundance of known vertebrate fossils and scientifically significant invertebrate and plant fossils (BLM 2007). The PFYC scheme ranges from very low (PFYC 1) to very high (PFYC 5) depending on the potential fossil yield (BLM 2016). Unknown fossil potential is assigned to geologic units that do not have a clear PFYC assignment (PFYC U). Typically, paleontological resource compliance is required for earthwork occurring within PFYC classes 3, 4, 5, or U rock units.

The project area is underlain by the Tulare Formation which is known to have a high potential for fossil resources (PFYC 4) as well as old alluvial fan deposits, which have an unknown potential for fossil resources (PFYC U) (BLM Paleontological Resource Inventory Report # 6000-2016-34P). CRC has requested the San Diego Natural History Museum – Paleontological Department provide monitoring and mitigation for wells under FWA 21-05P, following the monitoring and mitigation plan provided in PRIR 6000-2016-34P provided in the COAs.

Chapter 4. Environmental Impacts

This section describes the environmental impacts of the Proposed Action and No Action Alternatives. This analysis addresses the direct and indirect effects of implementing the proposed project and includes the identified measures and COAs described in Chapter 2.

DIRECT AND INDIRECT IMPACTS

Air Quality

Proposed Action:

The proposed project would result in the emission of criteria pollutants for which the San Joaquin Valley Air Basin has a non-attainment or maintenance designation, including 8-hour ozone, PM₁₀, and PM_{2.5}. These emissions are associated with combustion sources such as diesel drill and completion/workover rig engines, drill pad construction equipment (i.e., dozers, backhoe, grader, etc.), equipment trucks, water trucks, drill rig crew trucks/vehicles, and portable lift equipment. Emissions of criteria pollutants or hazardous air pollutants could also occur through venting or fugitive losses from use of chemicals, or valves and fittings, pumps, compressors, and the well head. In addition, localized impacts to air quality would occur during project implementation as a result of soil disturbance and fugitive dust emissions.

CREH has estimated and the BLM has reviewed project-related emissions for all pollutants of concern in the project area. The following table compares estimated emissions from the proposed action with the EPA-determined *de minimis* emissions levels for all non-attainment and maintenance criteria pollutants in the San Joaquin Valley Air Basin.

Comparison of Project Emissions (Year 1) to Federal *de minimis* Levels for San Joaquin Valley Air Basin

Regulated Pollutant	Federal Designation	<i>de minimis</i> level (tons/year)	Emission Estimate for Project Year 1 (tons)
Ozone (ROG)	Extreme non-attainment	10	0.4602
Ozone (NOx)		10	8.7774
PM10	Maintenance	100	0.2448
PM2.5 (Direct emissions, SO2, NOx, VOC, or ammonia)	Non-attainment	100	1.7610

Therefore, the proposed project is consistent with the SIP and emissions would not exceed the *de minimis* emission levels and are exempt from conformity determination (40 CFR Part 93.153). As a result, no formal conformity analysis or determination is required.

As described in Chapter 3, there are several SJVAPCD rules that would minimize air quality impacts, such as Rules 2280, 4101, 4401, 4402, 8021, and 8031. For example, applicant compliance with Regulation VIII (Rules 8021 and 8031) would minimize particulate emissions by requiring CREH to water unpaved access roads in the project area and to water soils prior to excavation and trenching and during backfilling while compacting. Applicant compliance with Rule 2280 would ensure that ROG/VOC and NOx emissions from certain portable units, such as the drilling rig, would be evaluated per the SJVAPCD's calculation methodologies, and any increase in emissions would be fully offset during the air permitting process. Implementation of this existing regulatory mechanism would offset the increase in potential emissions related to the proposed project.

As described above, well development and oil production may result in HAP emissions. The exact HAP compounds and the amounts of these compounds emitted depend on the HAP content of the produced oil as well as the management techniques employed. Beginning in the 1990s EPA studied oil exploration and production operations to determine if oil and gas exploration and production HAP emission impacts were significant enough to require regulation under the National Emission Standards for Hazardous Air Pollutants (NESHAP). Oil and gas production NESHAP rules and rule revisions were promulgated in 1999, 2001, 2007, and 2012. To date, only one type of oil exploration and production equipment, glycol dehydrators, has been identified as a significant source of HAP emissions requiring regulation. No glycol dehydrators are proposed as part of the proposed action. BLM reviewed the EPA rulemaking and data on HAP emissions from representative single oil wells and found that in each case HAP emissions were below the threshold requiring controls under the NESHAP. Therefore, the impact of potential HAP emissions from this action are not considered significant.

Based on the emissions estimates reviewed, BLM has determined that direct criteria pollutant emissions from this action would have no significant impact. This determination is confirmed by the finding that SJVAPCD regulations either exempt the action as having emission below applicability thresholds, or impose controls sufficient to maintain compliance with Air Quality standards.

The indirect effects to air quality from the Proposed Action alternative would occur downstream from the project site through transportation and refining of the crude oil, and consumption of the end products. Petroleum product use is determined primarily by user demand as opposed to crude oil supply. Based on that fact combined with the large scale of oil and gas production in California (reported by the US Department of Energy to be 197 million barrels per year) and the rate at which existing wells are being abandoned, the BLM has determined the addition of 6 producing oil wells would not lead to a significant impact on air quality.

No Action:

There would be no impacts to air quality from the No Action Alternative outside of those already occurring in the San Joaquin Valley Air Basin because the project would not occur. Any impacts on site would remain the same in absence of the proposed project.

Climate Change

Proposed Action:

The proposed action would result in emissions of GHGs that are known to contribute to global climate change. These emissions are associated with combustion sources such as diesel drill and completion/workover rig engines, drill pad construction equipment (i.e., dozers, backhoe, grader, etc.), equipment trucks, water trucks, drill rig crew trucks/vehicles, and portable lift equipment. Emissions of GHGs could also occur through venting or fugitive losses from valves and fittings, pumps, compressors, and the well head.

CREH estimated and the BLM reviewed project related GHG emissions. It was estimated that the project would emit 1,453.26 metric tons of CO₂e over the life of the project. Put into perspective, the California Air Resources Board estimated a total of 424.10 million metric tons of CO₂e emitted to the atmosphere in 2017 (CARB, 2019), while this project would result in 1,453.26 metric tons. In mathematical format, this perspective would be:

$$1,453.6 \text{ metric tons of CO}_2\text{e from project} / 424,100,000 \text{ metric tons of CO}_2\text{e in California in 2017} = 0.000003427$$

Based on this analysis, BLM concludes that direct GHG emissions from the action would not have a significant impact.

Additional GHG emissions would occur as an indirect effect during transport to refiners and refining, and during the end use of produced oil and gas. A rough estimate of possible indirect CO₂ emissions is based on the RFD Scenario, other publicly available information, and assumptions integrated into the Central Coast Field Office Draft RMPA/EIS (BLM, 2017). Possible indirect emissions were estimated by assuming annual production per well of 8,614 barrels of crude oil. The table below estimates 24,654 MTCO₂e of GHG emissions from the production plus transport plus end use of crude oil that could possibly be produced annually by six wells. Please note that all references cited in the GHG analysis in the Central Coast Field Office Draft RMPA/EIS (BLM, 2017) are incorporated here by reference.

Estimated end use greenhouse gas emissions for six wells

End Use GHG Emissions (Reference)	CO ₂ Emission Factor	Resulting Estimate of End Use Emissions per well	CO ₂ e (MTCO ₂ e per year) for 9 wells
Production plus Transport (ARM LCFS and BLM 2017)	26.67 g CO ₂ e/MJ	—	1782
End Use (IPCC 2006)	73,300 kg/TJ	3,993 CO ₂ lb/yr	23,958

End Use (EIA 2011)	10.29 kg/gal	3,723 CO ₂ lb/yr	22,338
End Use (USEPA 2016)	74.54 kg/MMBtu	3,722 CO ₂ lb/yr	22,332
Estimated End Use CO ₂ Emissions	(Average of End Use Values above)	3,812 CO₂ lb/yr	22,872
Estimated End Use GHG Emissions (CO ₂ e)	Include CH ₄ and N ₂ O	—	78
Production Phase plus End Use GHG Emissions Total (CO ₂ e)		—	24,654

Table sources, full citations available in the Bakersfield Field Office Final Supplemental EIS (BLM 2019):

ARB Calculation of 2012 Crude Average Carbon Intensity (CI) Values;

IPCC, 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2, Energy, 2006;

USEPA, 2011. Voluntary Reporting of Greenhouse Gases Program. Fuel Emission Coefficients Table 1 (CO₂ for Stationary Combustion); USEPA, 2016. Mandatory Greenhouse Gas Reporting Regulation. 40 CFR Part 98, Subpart C, Table C-1. (Default HHV, CO₂ factors).

USEPA, 2019. Mandatory Greenhouse Gas Reporting Regulation. 40 CFR Part 98, Subpart C, Table C-1. (Default HHV, CO₂ factors);

USEPA, 2019. Mandatory Greenhouse Gas Reporting Regulation. 40 CFR Part 98, Subpart C, Table C-2. (Default CH₄ and N₂O Emission factors)

BLM, 2017. Central Coast Field Office Draft Resource Management Plan Amendment and Draft Environmental Impact Statement for Oil and Gas Leasing and Development

With respect to the estimate of end use CO₂ emissions, it should be noted that it is difficult to discern with certainty how transport would occur and what end uses for the fuels extracted from a particular lease might be reasonably foreseeable. For instance, some end uses of fossil fuels extracted from federal leases include combustion of transportation fuels, fuel oils for heating or industrial use, as well as production of asphalt and road oil, and the feedstocks used to make chemicals, plastics, and synthetic materials. The estimate provided above is based on an approximation of these end uses on a national basis using the references cited. While the BLM based these estimates on state-specific transport and national data about typical end use of produced oil and gas, it is important to note that the BLM does not exercise control over the specific end use of the oil and gas produced from any individual federal lease.

The cumulative impacts section of this environmental assessment does not address Climate Change itself because the phenomenon is innately a result of cumulative impacts and is difficult to quantify. An analysis of indirect greenhouse gas emissions serves as a proxy for assessing potential for climate change effects and climate related cumulative impacts.

24,654 MTCO₂e downstream proposed / 424,100,000 MTCO₂e total in California in 2017
= 0.000058132 of the state total GHG emissions

Compared to total GHG emissions in the state, the emissions from the proposed action would not have a significant impact.

No Action:

There would be no additional impacts to the trajectory of global climate change from the No Action alternative; implementing this alternative would result in no net gain of GHGs in the atmosphere because the project would not occur.

Biological Resources

Proposed Action:

Through clearing of vegetation, scraping, and grading project implementation would disturb 3.363 acres of federally listed species potential habitat. Based on field surveys, federally listed plant and animal species and their sign (scat, tracks, etc.) are absent from the project footprint and an 250ft area around the project, therefore direct impacts, such as vehicle collisions, entrapment in open trenches or sumps, and ingestion of oil field fluids, would not be expected.

Considering the loss of potential habitat, the BLM concluded the project “may affect, likely to adversely affect” listed species and formally consulted with the US Fish and Wildlife Service. Consultation was completed on a programmatic basis for oil and gas development in the southern San Joaquin Valley in 2017 (2017 Oil and Gas Programmatic Biological Opinion 08ESMF00-2016-F-0683, “2017 BO”). The 2017 BO includes a thorough discussion of the potential direct and indirect impacts to listed species from project activities, and the discussion is hereby incorporated by reference. The 2017 BO conservation program includes detailed monitoring, reporting, and survey requirements as well as additional measures to avoid and minimize impacts to listed species. Applicable measures, based on habitat and species potential, are included in the proposed project description as Design Features (COAs) and as project specific authorization #124 under the 2017 BO. Implementation of these measures would further reduce the potential for impacts. Furthermore, the measures require off-site conservation of listed species habitat in perpetuity. Specifically, for project authorization #124, **a preliminary estimate of compensation is 11.474 compensation acres (3.363 permanent acres compensated at 3:1 = 10.089 + 1.385 replacement acres).**

For non-listed species, the same mechanisms of potential direct and indirect impact discussed in the 2017 BO would apply. Adherence to the provisions of the Design Features (COAs) and the 2017 BO project specific authorization would result in similar protections for non-listed species.

No Action:

There would be no additional impacts to biological resources from the No Action Alternative. However, the rejection of the APDs would not alter the trajectory of listed species populations relative to APDs approval because the amount of disturbance is inconsequential on a regional scale. Also, under the No Action alternative, there would be no off-site conservation of listed species habitat in perpetuity, and the impacts to habitat may only be postponed until the next APDs is approved for the development of the mineral lease.

Soil Resources**Proposed Action:**

Soil disturbance would occur as a result of well pad construction and drilling operations. Topsoil and soil horizons would be removed and/or mixed, changing soil-water dynamics and removing nutrients from the project site. In addition, soils would be compacted, which could lead to surface runoff, sediment carry, and erosion concerns. The likelihood of water and wind erosion are is moderately low and moderately high throughout the project area, respectively. However, CREH would minimize and mitigate these impacts by conducting interim reclamation utilizing site-specific topsoil on the well pad and cut and fill slopes subsequent to drilling operations. This would include all practicable measures to minimize erosion and stabilize disturbed soils. Also, CREH would conduct final reclamation at the project site when the well is abandoned. In addition, CREH would comply with all applicable federal, state, and local air quality rules and regulations in order to reduce emissions of particulate matter originating from soil disturbance at the project site.

CREH is required to comply with all federal, state, and local laws and regulations, including provisions of EPA regulation 40 CFR 112, Oil Pollution Prevention, and BLM California IM CA-92-124, Oil and Gas Guidelines for Undesirable Events (NTL-3A). Nonetheless, the potential remains for hydrocarbon and chemical leaks or spills to occur on the project site and contaminate soils during project implementation. Given the required regulatory compliance framework, the likelihood of these spills are low and the impacts to soils from spills would not be significant.

No Action:

There would be no impacts to soil from the No Action alternative because the project would not occur. However, implementation of the No Action alternative would not result in conservation of land in perpetuity, as required by the Oil and Gas Programmatic Biological Opinion. Although the intent of the Biological Opinion is to compensate for destruction of habitat, compensation and conservation of land through this Biological Opinion would result in the restriction of development, ultimately resulting in the restriction of soil disturbance as well.

Water Quality and Quantity

Proposed Action:

The proposed action would not result in direct or indirect impacts to underground sources of drinking water or surface waters. No underground sources of drinking water are known to exist in the project area. Surface waters are not expected to be directly or indirectly impacted because there are no blue-line drainages that would be altered on the project site and CREH would implement all applicable Design Features/Conditions of Approval for Surface, which would avoid erosion, sediment carry, and other potential impacts to the adjacent drainages in the general project area. In addition, the project would not result in fresh water quantity impacts because CREH would obtain fresh water from the West Kern Water District, a water management agency that implements water conservation measures and efficient use of urban water supplies under the California Urban Water Management Planning Act (West Kern Water District, 2016).

No Action:

There would be no impacts to water quality and quantity from the No Action alternative because the project would not occur.

Paleontological Resources

The project area is underlain by the Tulare Formation and other paleontologically sensitive which are known to have a high potential for fossil resources (PFYC 4), as well as old alluvial fan deposits, which have an unknown potential (PFYC U). As a result, direct impacts to paleontological resources could occur during any excavation and earthwork in the area. Due to this potential, paleontological monitoring and specimen collection is recommended for all construction-related activities involving terrain modification. These activities include, but are not limited to, buried electrical line installation, road and well pad leveling and power pole installation. A Paleontological Mitigation Plan is included as an attachment to this document and all associated permits. This mitigation plan describes how fossil discoveries would be salvaged, collected, and curated in a BLM approved museum repository. The implementation of this plan mitigates all potential impacts to paleontological resources as a result of project activities.

No Action:

There would be no impacts to paleontological resources under the no action alternative. There would be no ground disturbance and fossils would stay in place. However, leaving fossils buried limits opportunities for scientific investigation, which can be facilitated through the implementation of a Paleontological Mitigation Plan, which includes monitoring and collection. This mitigation is required for all project activities on BLM surface or private lands for which paleontological mitigation recommendations have not been waived.

Chapter 5. Consultation and Public Involvement

BIOLOGICAL CONSULTATION

Formal consultation with the U.S. Fish and Wildlife Service was initiated in 2016. The Fish and Wildlife Service issued their “No jeopardy” biological opinion on December 22, 2017

(Programmatic Biological Opinion on Oil and Gas Activities on Bureau of Land Management Lands in the San Joaquin Valley, 08ESMF00-2016-F-0683).

PERSONS, GROUPS AND AGENCIES CONSULTED

Kevin Coodey, Assistant Field Manager for Minerals, BLM

Daniel Padilla, Regulatory Advisor, CREH

Joseph Parra, Regulatory Advisor, CREH

SUMMARY OF PUBLIC PARTICIPATION

The BLM posted notification that it was considering these NOSs/APD's on the E-Planning public website on December 20th 2021. This notice initiated the 30-day scoping period. The BLM also posted copies of the Applications for Permit to Drill (APDs) in the front lobby of the Bakersfield Field Office for that 30-day period. Comments were received from the Center of Biological Diversity, which have been addressed in this EA.

LIST OF PREPARERS

Zachary Day, Archaeologist - Cultural and Paleontological Resources

Fernando Baños, Natural Resource Specialist

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**United States Department of the Interior
Bureau of Land Management
Bakersfield Field Office**

Finding of No Significant Impact (FONSI)

**California Resources Elk Hills, LLC (CREH)
6 APDs in Buena Vista Hills
DOI-BLM-CA-C060-2022-0024-EA
Programmatic Project #124**

Background

California Resources Elk Hills, LLC (CREH) has submitted six Applications for Permit to Drill (APDs) to drill wells: 603H-1-6D, 658UH-36-6D, 674UH-6-8D, 675H-6-8D, 613H-26-25B, & 613UH-26-25B on federal mineral leases CAS0019577 & CAS0019343 in Sections 6, 8, & 25 of T32S, R24E, MTD. The proposed project would occur on private and public lands containing BLM administered mineral state within the Buena Vista Oilfield. Project implementation would include the grading of new and existing well pad locations, installation of associated power poles and pipelines, and the drilling of six new wells.

The purpose of the proposed action is to respond to the APDs submitted by California Resources Elk Hills, LLC to drill six new oil wells and stage associated facilities required to increase production on federal mineral leases CAS0019577 & CAS0019343.

The need for the action is established by BLM's responsibility under the Mineral Leasing Act of 1920 as amended, the Mining and Minerals Policy Act of 1970, the Federal Land Policy and Management Act of 1976, the National Materials and Minerals Policy, Research and Development Act of 1980 and the Federal Onshore Oil and Gas Leasing Reform Act of 1987 to allow reasonable access to develop a federal oil and gas lease.

This Environmental Assessment (EA) has been prepared in compliance with the National Environmental Policy Act (NEPA) and other relevant federal and state laws and regulations. The purpose of this document is to disclose and analyze the environmental consequences that are anticipated from the grading of new and existing well pad locations, installation of associated power poles and pipelines, and the drilling of six new wells on existing federal mineral leases (CAS0019577 & CAS0019343) in the Buena Vista Oilfield. BLM will decide whether to approve, approve with conditions, or deny the six APDs submitted by CREH.

Finding of No Significant Impact

Based upon a review of the EA and the supporting documents, I find that the project is not a major federal action and will not significantly affect the quality of the human environment. No environmental effects meet the definition of significance based on the potentially affected environment and degree of the effects as defined in 40 CFR 1501.3(b) and furthermore, no

environmental effects exceed those effects described in the Bakersfield Resource Management Plan, approved in December 2014. Therefore, an environmental impact statement or a supplement to the existing environmental impact statement is not necessary and will not be prepared. This finding is based on consideration of the potentially affected environment and degree of effects of the project as described below:

Potentially Affected Environment

“In considering the potentially affected environment, agencies should consider, as appropriate to the specific action, the affected area (national, regional, or local) and its resources such as listed species and designated critical habitat under the Endangered Species Act. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend only upon the effects in the local area.” 40 CFR 1501.3 (b)(1).

The proposed project is located on BLM administered lands in Sections 6, 8, & 25 of T32S, R24E, MDBM. The proposed activity is a site-specific action with minor localized effects on air quality and soils. The EA details the effects of the action alternatives. None of the effects identified are considered to be significant and none exceed the effects described in the Resource Management Plan.

Degree of Effects

I have considered the potential degree/severity of the impacts anticipated from the approval of the proposed action: the grading of new and existing well pad locations, installation of associated power poles and pipelines, and the drilling of six new wells on an existing federal mineral lease (CAS0019577 & CAS0019343) in the Buena Vista Oilfield. The following discussion is organized around 40 CFR 1501.3 (b)(2).

1. **Short- and long-term effects of the selected alternative.** Short-term effects include noise, air pollutant emissions, increased human activity, and the presence of heavy equipment during construction activities. Long-term effects include production of fluid mineral resources which, when burned, contribute to greenhouse gas quantities.
2. **Impacts may be both beneficial and adverse.** The selected alternative would result in emission of air pollutants, contributions to greenhouse gases, soil disturbance, and destruction of habitat for federally listed species. Contributions of air pollutants and greenhouse gas emissions are indiscernible from ambient conditions at the local, state, and national levels. Animals may alter their movement patterns to avoid the project vicinity during the days of construction, but this impact would be expected to dissipate once construction concludes. None of these impacts would be significant at the local scale or cumulatively because of the small scale of the project and Design Features/Conditions of Approval (COAs) that would reduce impacts to immeasurable levels. Air emissions would be below *de minimis* levels; soils would be preserved during construction and would be restored to the extent possible once the proposed action concludes and listed species habitat destruction would be minimized and compensated for according to the terms of the applicable biological opinion. Beneficial impacts include the development of the fluid mineral lease including resulting royalties and employment opportunities for area residents.

None of the environmental effects discussed in detail in the EA are considered significant, nor do the effects exceed those described in the Bakersfield Proposed Resource Management Plan and Final Environmental Impact Statement.

3. **The degree to which the selected alternative will affect public health or safety.** The proposed project is comparable to other similar activities and projects already undertaken on BLM-administered lands within the Bakersfield Field Office and nationwide with no unusual health or safety concerns. All operators are subject to the standards outlined in the California Occupation Safety and Health Plan, and the State must conduct inspections to enforce its standards and must operate occupational safety and health training and education programs. Also, operators must comply with federal safety regulations outlined in 43 CFR 3160 and the Onshore Oil and Gas Orders. Implementation of measures to meet these standards and regulations would minimize risks to public health and safety; therefore, any impacts to public health and safety are not considered significant.
4. **Whether the selected alternative would violate a federal, state, local, or tribal law, protecting the environment.** The alternatives do not violate any known federal, state, local or tribal law or requirement imposed for the protection of the environment. Coordination and consultation with state, local and tribal interests was conducted as described in the EA. In addition, the project is consistent with applicable land management plans, policies, and programs. The proposed action is fully consistent with the 2014 Bakersfield Resource Management Plan. The EA is in full compliance with the National Environmental Policy Act of 1969 and is consistent with the Federal Land Policy and Management Act of 1976, as amended.

Prepared by: **FERNANDO BANOS**
Project Lead

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Approved by: **KEVIN COODEY**
Assistant Field Manager- Minerals

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KEVIN COODEY
Date: 2022.02.28
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**United States Department of the Interior
Bureau of Land Management
Bakersfield Field Office**

Decision Record

**California Resources Elk Hills, LLC (CREH)
6 APDs in Buena Vista Hills
DOI-BLM-CA-C060-2022-0024-EA
Programmatic Project #124**

Introduction

California Resources Elk Hills, LLC (CREH) has submitted six Applications for Permit to Drill (APDs) to drill wells: 603H-1-6D, 658UH-36-6D, 674UH-6-8D, 675H-6-8D, 613H-26-25B, & 613UH-26-25B on federal mineral leases CAS0019577 & CAS0019343 in Sections 6, 8, & 25 of T32S, R24E, MTD. The proposed project would occur on private and public lands containing BLM administered mineral state within the Buena Vista Oilfield. Project implementation would include the grading of new and existing well pad locations, installation of associated power poles and pipelines, and the drilling of six new wells.

The purpose of the proposed action is to respond to the APDs submitted by California Resources Elk Hills, LLC to drill six new oil wells and stage associated facilities required to increase production on federal mineral leases CAS0019577 & CAS0019343.

The need for the action is established by BLM's responsibility under the Mineral Leasing Act of 1920 as amended, the Mining and Minerals Policy Act of 1970, the Federal Land Policy and Management Act of 1976, the National Materials and Minerals Policy, Research and Development Act of 1980 and the Federal Onshore Oil and Gas Leasing Reform Act of 1987 to allow reasonable access to develop a federal oil and gas lease.

Decision

I have reviewed the recommendations on the proposed action addressed in this environmental assessment. I find this action to be in conformance with applicable land use plans, that it effectively serves the public, and that it will not cause unnecessary or undue degradation. It is therefore my decision to approve the proposed action which is subject to the Design Features/Conditions of Approval identified for the proposed action in the Environmental Assessment.

Alternatives Considered but not Selected

A No Action Alternative that would deny the application was considered, but not selected.

Decision Rationale

The decision to approve the APDs for the wells 603H-1-6D, 658UH-36-6D, 674UH-6-8D, 675H-6-8D, 613H-26-25B, & 613UH-26-25B best meets the purpose and need of BLM by authorizing CREH to drill a well on the federal mineral estate, pursuant to the *Federal Land Policy and Management Act of 1976*, the *Mineral Leasing Act of 1920*, as amended, and 43 CFR 3160. This decision also meets the Bakersfield RMP's decision and objective:

[MM-D-1.1.5] "Identify approximately 1,011,470 acres as open to fluid mineral leasing, subject to major constraints (both CSU- Protected Species and CSU- Sensitive Species)..."

[MM-O-1] "Facilitate reasonable, economical, and environmentally sound exploration and development of leasable minerals while minimizing impacts to other resources."

The proposed action is located on an existing lease that was issued in conformance with the above land use plan decisions. Issuance of the lease was not judicially challenged and the lease is considered a valid existing right with rights of development.

Consultation and Coordination

Public Involvement

BLM conducts external scoping on routine NOSs and APDs by posting notification that it is considering the NOS(s)/APD(s) on the E-Planning public website, which initiates the 30-day notification period. In addition, APDs are published nationally at the time of acceptance at <https://reports.blm.gov>. The following APD was posted on December 20th, 2021 on the E-Planning website to solicit public comment or requests to review the Draft EA. Comments were received from the Center of Biological Diversity and have been address in the EA.

Biological Consultation

Formal consultation with the U.S. Fish and Wildlife Service was initiated in 2016. The Fish and Wildlife Service issued their “No jeopardy” biological opinion on December 22, 2017 (Programmatic Biological Opinion on Oil and Gas Activities on Bureau of Land Management Lands in the San Joaquin Valley, 08ESMF00-2016-F-0683). The 2017 Oil and Gas Programmatic Biological Opinion provides take coverage for authorization of individual projects occurring on surface and subsurface lands administered by the BLM in the San Joaquin Valley that disturb less than 10 acres of habitat or that encompass linear actions less than 10 miles long. This project occurs in Kern County and disturbs 3.363 acres, requiring a total of 10.089 acres of compensation and 1.385 acres of replacement, thus satisfying both requirements for coverage under the 2017 Oil and Gas Programmatic Biological Opinion.

Plan Consistency

Based on information in the EA, the project record, and recommendations from BLM specialists, I conclude that this decision is consistent with the Bakersfield RMP; the Endangered Species Act; the National Historic Preservation Act; the Paleontological Resources Preservation Act; other cultural resource management laws and regulations; Executive Order 12898 regarding Environmental Justice; and Executive Order 13212 regarding potential adverse impacts to energy development, production, supply and/or distribution.

Administrative Remedies

Administrative remedies may be available to those who believe they will be adversely affected by this decision. Appeals may be made to the Office of Hearings and Appeals, Office of the Secretary, U.S. Department of Interior, Board of Land Appeals (Board) in strict compliance with the regulations in 43 CFR Part 4. Notices of appeal must be filed in this office within 30 days after publication of this decision. If a notice of appeal does not include a statement of reasons, such statement must be filed with this office and the Board within 30 days after the notice of appeal is filed. The notice of appeal and any statement of reasons, written arguments, or briefs must also be served upon the Regional Solicitor:

U.S. Department of the Interior
Office of the Solicitor, Pacific Southwest Region
2800 Cottage Way, Room E-1712
Sacramento, CA 95825-1890

The effective date of this decision (and the date initiating the appeal period) will be the date of approval by the authorized officer.

KEVIN COODEY

Digitally signed by KEVIN COODEY
Date: 2022.02.28 14:55:40 -08'00'

Assistant Field Manager, Minerals

Date

**United States Department of the Interior
Bureau of Land Management
Bakersfield Field Office**

Conditions of Approval (COAs) for Surface

**California Resources Elk Hills, LLC (CREH)
6 APDs in Buena Vista Hills
DOI-BLM-CA-C060-2022-0024-EA
Programmatic Project #124**

Design Features/Additional Conditions of Approval (COAs) for Surface

The following Design Features and conditions of approval are part of the proposed action:

CREH shall comply with all applicable Federal, Tribal, State, and local laws during project implementation.

Biological Resources

This project would be covered as project #124 under the 2017 Oil and Gas Programmatic Biological Opinion (08ESMF00-2016-F-0683). The 2017 Oil and Gas Programmatic Biological Opinion provides take coverage for authorization of individual projects occurring on surface and subsurface lands administered by the BLM in Kings and Kern Counties that disturb less than 10 acres of habitat or that encompass linear actions less than 10 miles long. This project occurs in Kern County and disturbs 3.363 acres of habitat, thus satisfying both requirements for coverage under the 2017 Oil and Gas Programmatic Biological Opinion. Compliance with the Project Specific Provisions (**Attachment 1**) of this Opinion is required. **A preliminary estimate of compensation is 11.474 compensation acres (3.363 permanent acres compensated at 3:1 = 10.089 + 1.385 replacement acres).**

In addition, CREH shall comply with all of the “Avoidance & Mitigation Actions” recommended by consulting Biologist by Kimberly Fiehler (West Kern Environmental Consulting, LLC) in her October 28th, 2021 Sensitive Species Review Form:

1. A biological monitor will be present during initial ground disturbance and will be on-call and notified (661) 448-3131 if listed species are observed in the project area subsequent to initial ground disturbance.
2. A Threatened and Endangered Species training session will be given to construction personnel prior to project implementation.
3. A pre-activity survey shall be conducted on the project site within 14-days of project construction. Should a potential kit fox den be observed during the 14-day pre-construction survey, CRC will implement monitoring measures based on guidelines in the USFWS Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance (USFWS 2011).

4. Project site boundaries shall be clearly delineated by stakes, flagging and/or rope to minimize inadvertent degradation or loss of adjacent habitat during well pad and pipeline installation activities.
5. All construction equipment, staging areas, material and personnel shall be restricted to previously disturbed areas (roads, well pads, and other non-habitat areas).
6. All construction pipes, culverts, or similar structures stored at the construction site overnight having a diameter of two (2) inches or greater shall be inspected thoroughly for wildlife species before being buried, capped, or otherwise used or moved in any way. Pipes laid in trenches overnight shall be capped. If during construction a wildlife species is discovered inside a pipe, that section of pipe shall not be moved or, if necessary, moved only once to remove it from the path of construction activity, until the wildlife species has escaped.
7. A speed limit of 10 mph (MAX) will be enforced to avoid incidental take of wildlife along roadways.
8. All excavated steep-walled holes or trenches in excess of three feet in depth left open for more than one (1) workday shall be provided with one or more escape ramps constructed of earth fill or other material to prevent entrapment of endangered species or other animals. Ramps shall be located at no greater than 1,000-foot intervals (for pipelines etc.) and at not more than 45-degree angles. Trenches shall be inspected for entrapped wildlife each morning prior to onset of construction activities and immediately prior to the end of each working day. Before such holes or trenches are filled, they shall be inspected thoroughly for entrapped animals. Any animals discovered shall be allowed to escape voluntarily without harassment before construction activities resume or removed from the trench or hole by a qualified biologist and allowed to escape unimpeded.
9. All food related trash such as wrappers, cans, bottles, and food scraps shall be disposed of into closed containers and be removed daily from the site.
10. Feeding of wildlife is strictly prohibited.
11. CRC staff and/or its contractors should designate a specific individual as a contact representative between CRC and all applicable federal, state, and local agencies to oversee compliance with these avoidance mitigation measures.
12. Firearms are prohibited on site.
13. Pets are prohibited on site.
14. Follow BLM General Guidelines for Conserving Habitat and Minimizing Project Impacts.

Cultural Resources

In the event of inadvertent discovery of cultural resources during project implementation, personnel responsible for the project shall immediately notify the BLM Bakersfield Field Office Cultural Resource Staff and Field Manager (661-391-6000). All work at the site of discovery, and in any other locations where damage to the discovery could occur, shall cease until written approval is received from the BLM.

If human remains are inadvertently discovered on BLM surface land, all activity will immediately cease surrounding the unanticipated discovery. The holder will ensure that the discovery is secured and protected and will immediately notify the BLM Field Manager (661-391-6000). The BLM will adhere to current regulations regarding the treatment of human remains (Native American

Graves Protection and Repatriation Act, 43 CFR 10). Access and use of the area can proceed with written approval from the Field Manager once the appropriate level of review has been determined and completed.

Paleontological Resources

This project is located on BLM surface lands, and the area has been designated as Potential Fossil Yield Classification (PFYC) of 4, the Tulare formation, as well as PFYC U (Unknown) from older alluvial fan deposits. Class 4 formations are highly likely to contain vertebrate fossils or scientifically significant invertebrate fossils, while Class U has an unknown potential. A paleontological survey (6000-2016-34P) has provided a monitoring and mitigation strategy for the BVH MDP area for the 4 federal surface land wells (provided at the end of these COAs).

CRC was contacted regarding the 2 split estate wells (613H-26-25B & 613UH-26-25B) as the private landowner, and they have waived paleontological monitoring and mitigation for these two wells.

In the event of inadvertent discovery of paleontological resources during project implementation, the BLM Field Office Paleontological Staff and the BLM Field Manager (661-391-6000) shall be immediately notified by personnel responsible for the project. All work at the site of discovery, and in any other locations where damage to the discovery could occur, shall cease until written approval by the BLM.

Construction and Interim Reclamation

Reclamation activities will be initiated in the fall, starting no earlier than October to maximize use of the wet season. All reclamation areas will be monitored for a minimum of five years, or until the BLM determines the locations have been successfully reclaimed. Reclamation progress will be reviewed annually in the fall season to determine if additional re-seeding activities are required or if fencing and signage need to be repaired.

All permanent above-ground structures (e.g., production equipment, etc.) not subject to safety requirements shall be painted to blend with the natural color of the landscape. The paint used will be a color which simulates “Standard Environmental Colors.” The colors selected for the project location are Covert Green or Carlsbad Canyon.

At the beginning of construction, topsoil (approximately the top four inches of soil) shall be removed from the project area and stockpiled on an existing pad or previously disturbed surface in close proximity to the project site. Subsequent to well completion, topsoil will be re-applied to the cut and fill slopes, as well as the sump. “Well completion” is a technical term used to describe the final phase of well drilling; “well completion” is not synonymous with the final phase of project implementation. Prior to applying topsoil to the sump, it will be cleaned, ripped to a minimum depth of 12 inches, and re-contoured to match the surrounding topography. Remaining topsoil will be stockpiled on an existing well pad or other previously disturbed surface and retained for future reclamation. Topsoil will be retained for no more than one year.

All practicable measures will be taken to minimize erosion and stabilize disturbed soils. The following types of interim stabilization or similar methods may be used if necessary: jute netting, hydro-mulch, straw wattles, or crimped straw mulch.

Management of Noxious Weeds

A site-specific weed control Environmental Assessment (EA) and a Pesticide Use Permit (PUP) must be completed before any use of pesticides on BLM lands. This can be a lengthy process and requires specific information, public notification, and review by the BLM State Office. Currently, the applicant does not have these approvals in place. Therefore, no herbicide treatment is authorized at this time.

Final Reclamation

Disturbed lands shall be re-contoured to conform with existing undisturbed topography unless the BLM determines that re-contouring would result in negative impacts to special status species. No depressions shall be left that trap water or form ponds. All portions of final reclamation may be subject to additional cultural resources and paleontological inventory and may require a permit. The reclaimed landscape shall have characteristics that approximate the visual quality of the adjacent area with regard to location, scale, shape, color and orientation of major landscape features and meet the needs of the planned post disturbance land use.

Final reclamation shall specifically achieve the following:

1. The reclaimed area shall be stable and exhibit none of the following characteristics:
 - a. Large rills or gullies (greater than 6 inches deep).
 - b. Perceptible soil movement or head cutting in drainages.
 - c. Slope instability on, or adjacent to, the reclaimed area in question.
2. The soil surface must be stable and have adequate surface roughness to reduce runoff and capture rainfall and snow melt. Additional short-term measures, such as the application of mulch, shall be used to reduce surface soil movement.
3. Vegetation production and species diversity (including shrubs) shall approximate the surrounding undisturbed area (50-150% of the adjacent species composition and cover). The vegetation shall stabilize the site and support the planned post disturbance land use, provide for natural plant community succession and development, and be capable of renewing itself. This shall be demonstrated by:
 - a. Successful onsite establishment of species included in the planting mixture or other desirable species.
 - b. Evidence of vegetation reproduction, either spreading by rhizomatous species or seed production.
4. Habitat Restoration
 - a. Restoration will be required on unused portions, including abandoned, unused, or unnecessary roads, of the project area or oil and gas lease when deemed necessary by the BLM to maintain or improve habitat values. Restoration will be required when reserve area (Red Zone) and habitat corridor (Green Zone) limits are exceeded and when a project or lease is abandoned. Restoration activities will be supervised by an onsite monitoring biologist.
 - b. The following are examples of actions that may be required as part of restoration:
 - i. All trash will be removed from the site and disposed of properly.
 - ii. All cement, asphalt, and oil-contaminated soils will be removed from the site and disposed of properly.

- iii. All pipelines and other oilfield infrastructure no longer in use will be removed from the site and disposed of properly.
- iv. Topographic contours will be restored to the maximum extent possible.
- v. Non-compacted soils or areas previously deep ripped will be disked to a depth of approximately 8 inches.
- vi. Compacted sites will be deep ripped to a depth of 12 to 18 inches.
- vii. Slopes greater than 30 per cent will be treated by erosion control methods such as disking along the contour, imprinting, mulching, or installing wattles.
- viii. Sites will be seeded using methods such as drill or broadcast seeding with a site-appropriate seed mix, approved by the BLM Botanist. Exact seeding mixes and rates will depend on the site characteristics, the species chosen, and the current availability of native seed. Seed mixes will include dominant shrubs and native grasses and herbs compatible with the adjacent plant community. The best time for seeding is generally late summer to early fall prior to the onset of the rainy season.
- ix. Sites will be considered restored when it can be documented that they support functional, native habitat. Evidence of attainment of this goal will be provided by the project applicant. Restoration in drainages, streambeds, and similar habitats where water is a substantial component may require conformance with conditions of a CDFW Streambed Alteration Agreement or other state or local permit. Demonstration of restoration may include documentation of:
 - 1. Visual continuity or similarity with adjacent native, undisturbed habitat or a designated reference site.
 - 2. Topography that follows natural contours and allows for the natural flow of water across the landscape.
 - 3. Indiscernible boundary lines or areas between the disturbed and undisturbed areas.
 - 4. Presence of habitat that supports threatened and endangered species.
 - 5. Vegetation community composition within the normal or desired range. Ratios of native and non-native plants within normal or desired parameters. Presence and abundance of reproducing plants. Presence and abundance of biological soil crusts.
 - 6. Evidence or presence of animals or animal sign on the site. Presence and abundance of desired species. Evidence, presence, and abundance of reproducing species.
 - 7. Evidence of species diversity for both plants and animals.
 - 8. Evidence of soil stability (minimal erosion).
 - 9. Absence of signs of vehicle or other trespass. Absence of trash and contaminated soils.

Paleontological Resource Monitoring and Mitigation Plan:

The following sections provide a detailed paleontological mitigation plan (PMP) recommended for future development on BLM managed lands within the Buena Vista Hills Master Development Plan (MDP) (for private surface split estate or fee lands, paleontological resource compliance is up to the discretion of the surface owner). This mitigation program has been divided into sections outlining steps to be taken prior to the commencement of construction (e.g., contracting a qualified Project Paleontologist, attendance of Project Paleontologist at pre-construction meetings, paleontological resource training provided for earth excavation personnel), during construction (paleontological monitoring of excavations into Pleistocene older alluvial deposits or the Tulare Formation, salvage of discovered fossils), and post-construction (preparation and curation of any salvaged fossils, completion of final paleontological mitigation report). All steps taken in the mitigation program are in accordance with industry standards (e.g., SVP, 2010; Murphey et al., 2014). Adopting the recommendations outlined in this PMP will reduce impacts to paleontological resources from ground disturbance during construction to less than significant levels.

A1.0 PRECONSTRUCTION

Prior to commencement of construction activities, some or all of the following actions will be necessary.

A1.1 RETAINMENT OF QUALIFIED PROJECT PALEONTOLOGIST

Prior to the start of construction, a qualified Project Paleontologist (as defined below) shall be retained and approved by the lead agency to monitor ground disturbance activities. The Project Paleontologist will oversee the Paleontological Mitigation Program, including serving as supervisor to any retained qualified paleontological monitors (as defined below).

A1.1.1 QUALIFICATIONS

The qualified Project Paleontologist will have a Master's Degree or Ph.D. in paleontology, and will have proven knowledge of local paleontology and geology and professional experience with paleontological procedures and techniques. In turn, the qualified paleontological monitor(s) will have a BA or BS in Geology or Paleontology and a minimum of 1 year of monitoring experience in local sedimentary rocks. Other experience may be substituted on approval from the BLM and/or County of Kern.

A1.2 DESIGNATION OF REPOSITORY

For paleontological resources recovered from BLM managed lands, a professional repository approved by the BLM should be contracted prior the start of construction, to curate and store any discovered fossils. Such an institution should be a recognized paleontological specimen repository with a permanent curator, such as an AAM-accredited museum or university (e.g., Natural History Museum of Los Angeles County, San Diego Natural History Museum, or University of California Museum of Paleontology). The repository shall be capable of storing fossils in a facility with adequate security against theft, loss, damage, fire, pests, and adverse climate conditions.

The designated repository will understand that though they will assume the professional and financial responsibilities associated with curation and storage in perpetuity, ownership of the

fossils will be retained by the BLM. A curation agreement outlining this relationship, as well as funds required for initial curation and storage needs, shall be submitted to the Bakersfield Field Office for approval prior to beginning any work. Reasonable costs may include necessary curatorial supplies (e.g., archival specimen trays, glass vials, foam), as well as a one-time fee for initial specimen storage, which is generally calculated based on the actual or prorated purchase price of steel drawers and cabinets, and a prorated cubic foot volume charge for the collection room.

For paleontological resources recovered from private surface lands for projects conducted on split-estate, fee land, or connected action projects, the fossils are the property of the surface land owner. In such instances, the surface land owner is strongly encouraged to donate fossils to a professional repository.

A1.3 ATTENDANCE AT PRE-CONSTRUCTION MEETING

The Project Paleontologist shall attend the pre-construction meeting to consult with the grading and excavation contractors concerning excavation schedules, paleontological field techniques, and safety issues.

A1.4 WORKER ENVIRONMENTAL AWARENESS PROGRAM (WEAP)

Prior to the start of construction, the Project Paleontologist shall present a Worker's Environmental Awareness training program on paleontological resources to insure that all construction personnel understand paleontological monitoring requirements, the roles and responsibilities of paleontological monitors, and the appropriate action to be taken in the event of a discovery of paleontological resources. The penalties associated with the unauthorized collection of or intentional disturbance of any paleontological resources, as well as the penalties for noncompliance with paleontological mitigation requirements shall be clearly communicated. Training shall include a definition of paleontological resources and an overview of potential resources that could be encountered during ground disturbing activities, which will help to facilitate worker recognition, avoidance, and immediate notification to the Project Paleontologist, or paleontological monitor. All construction personnel will be required to attend a WEAP workshop.

A1.5 SUBMISSION OF LIST OF MONITORS AND PALEONTOLOGICAL MONITORING EXHIBIT

Prior to the start of earthwork, a Paleontological Monitoring Exhibit should be submitted to the BLM Bakersfield Field Office by the contracted Project Paleontologist. The monitoring exhibit shall highlight the areas to be monitored on available construction/grading plans. The names of any qualified paleontological monitors that may work on the Project Area shall also be submitted to the Bakersfield Field Office for approval prior to beginning any earthwork.

A1.6 RESEARCH DESIGN

There are specific research themes associated with the sedimentary rock units present within a given project, which will direct the types of data collection made during paleontological mitigation. These research themes would be applied during the implementation of a research design/discovery phase, as appropriate. Research themes related to Pleistocene-aged older alluvial deposits and the Tulare Formation include:

- Pleistocene land mammal diversity including "Ice-Age" megafauna
- Pleistocene non-marine paleoenvironments of the southern San Joaquin Valley

- Distribution and stratigraphy of marine and nonmarine deposits of the Tulare Formation
- Paleoecological structure of Pleistocene land mammal assemblages
- Pleistocene land mammal and aquatic vertebrate evolution and systematics
- Preservation of fossils in older alluvial deposits

A2.0 DURING CONSTRUCTION

Commencement of construction related excavation activities marks the time when potential impacts to paleontological resources will begin. To mitigate these potential impacts, some or all of the following actions are required:

A2.1 EXCAVATION MONITORING: DUTIES AND AREAS TO BE MONITORED

A qualified paleontological monitor(s) working under the direction of the Project Paleontologist shall be present full-time during all relevant ground disturbance activities (i.e., grading for new well pads and excavation of well sumps) associated with the well pad preparation phase of construction. Paleontological monitoring of well site drilling is not required.

It is the Construction Manager's responsibility to keep the Project Paleontologist and paleontological monitor(s) up-to-date with current earthwork plans and any construction or scheduling changes. The monitor(s) will coordinate with Construction Management to determine the timing for monitoring in the identified areas of concern. It will be the paleontological monitor's responsibility to maintain communication and coordination with the construction team. Paleontological monitoring may be reduced (e.g., weekly spot-checking), at the discretion of the Project Paleontologist, based on the conditions in the field (e.g., only weathered deposits are impacted by construction).

A paleontological monitor will observe and inspect any temporarily exposed outcrops (e.g., graded pad surfaces, cutslopes, sump sidewalls) for paleontological remains. Spoils produced from excavation activities (e.g., trenching, augering) may also be inspected. Ideally, inspection involves the examination of every newly exposed surface, but operationally this is often impossible. The pace and quantity of equipment in the cut may determine how often and where paleontological monitors can inspect. When active excavations are too dangerous to enter because of a narrow cut, short haul, and/or heavy equipment traffic, monitoring may be conducted from an elevated vantage point.

It is important to emphasize that paleontological monitors should avoid interference with, or delay of, construction operations.

A2.1.1 DATA RECOVERY (STRATIGRAPHY)

Recording of stratigraphic data will be an on-going aspect of excavation monitoring to provide context for any eventual fossil discoveries, and to gain a greater understanding of the stratigraphy and geology of Kern County and the southern San Joaquin Valley. Outcrops exposed in active cuts and finished slopes should be examined and observed geologic features recorded on grading plans and field notes. The goal of this work is to delimit the nature of fossiliferous sedimentary rock units in the Project Area, determine their areal distribution and depositional contacts, and record any evidence of structural deformation that may affect determination of the stratigraphic position

of recovered fossils. Standard geologic and stratigraphic data collected include lithologic descriptions (color, sorting, texture, structures, and grain size), stratigraphic relationships (bedding type, thickness, and contacts), and topographic position. Measurement of stratigraphic sections will be routinely done and areas containing exposures of fossiliferous sedimentary deposits will be studied in detail and fossil localities recorded on measured stratigraphic sections.

A2.1.2 SAFETY PROCEDURES

Safety of paleontological field personnel is of paramount concern during the construction phase. Safety procedures to be followed by field personnel will include wearing appropriate clothing (e.g., high-visibility safety vests, hard hats, steel-toed boots), carrying large handheld orange flags, securing equipment operators' attention before entering an active cut, notifying grading personnel before beginning a salvage excavation, marking fossil discovery sites with surveyor's flagging, and using caution while driving on haul roads. Attendance at the preconstruction meeting (section A1.3) and daily or weekly tailgate meetings are important for discussing mutual safety issues between paleontological field personnel and construction personnel.

A2.2 PROCEDURES FOR PALEONTOLOGICAL DISCOVERIES

The goal of paleontological monitoring is to observe excavation activities and to be onsite in the event that fossils are unearthed by excavation activities. When fossils are discovered the procedures outlined below will be followed. Recovery methods, as well as time needed for fossil recovery, may vary to some degree depending on the types of fossils discovered (e.g., macrofossils, microvertebrate fossils, or plant fossils) and the nature of the enclosing sedimentary deposits.

A2.2.1 DISCOVERY PROCESS AND WORK STOPPAGE

In the event of a fossil discovery, the qualified paleontological monitor may immediately initiate recovery or choose to temporarily stop construction or grading work at the discovery location to consult with the Project Paleontologist. When work is stopped, the Project Paleontologist will notify the project superintendent and appropriate agency representatives (e.g., BLM and Kern County staff members). The monitor, under direction of the Project Paleontologist, will divert, direct, or temporarily halt ground disturbing activities in the area of discovery to allow for preliminary evaluation of potentially significant paleontological resources and to determine if additional measures (i.e., collection and curation) are required.

A2.2.2 DETERMINATION OF SIGNIFICANCE

The significance of the discovered paleontological resources will be determined by the Project Paleontologist. For significant paleontological resources, a data recovery program will be initiated that will follow the general steps outlined below with some refinements based on the type and nature of the specific discovery.

The data recovery program will largely be driven by the research themes (see Section A1.6) and will incorporate appropriate field methods for data collection to answer specific questions, as well as develop plans for the preparation, curation, and storage of recovered fossils, and data collection and post-collection phases of fossil recovery.

A2.2.3 MACROFOSSIL RECOVERY

Many fossil specimens discovered during excavation monitoring are readily visible to the naked eye and large enough to be easily recognized and removed. Upon discovery of such macrofossils, the qualified paleontological monitor will temporarily flag the discovery site for avoidance and

evaluation as described above. Actual recovery of unearthed macrofossils can involve several techniques including “pluck-and-run,” hand quarrying, plaster-jacketing, and/or large-scale quarrying. The “pluck-and-run” technique will be used when equipment activity in the vicinity of the discovery area is heavy and immediate action is required to remove an isolated specimen so as not to slow the progress of construction operations. “Pluck-and-run” recovery involves exploratory probing around a partially exposed fossil specimen to determine its dimensions, the application of consolidants (Acryloid, Butvar, or Vinac) to stabilize any damaged or weakened areas of the fossil, and removal of the specimen in a block of matrix. Hand quarrying typically consists of site specific “mining” of fossil-rich sedimentary rock layers without establishment of a geographic grid framework. Fragile fossils are stabilized as described above. Hand quarrying and the “pluck-and-run” techniques can typically be carried out in several minutes, to an hour, thus minimizing the duration of any work stoppage.

Particularly large and/or articulated vertebrate fossils require special handling because of their size and/or fragility and are typically recovered in a process called “plaster-jacketing.” The process begins by isolating a partially exposed specimen from the temporary exposure in a matrix-supported sedimentary pedestal. The pedestal is then slightly undercut at its base to form an overhanging lip and a layer of damp newsprint or tissue paper is placed on the upper surface of the block. Strips of burlap fabric are then soaked in a mixture of Plaster-of-Paris and laid across the matrix block to dry. Depending upon the volume of the block, one, two, or more layers of plaster-soaked burlap strips are formed on the block. Especially large blocks (over two feet in length) are reinforced with wooden or metal splints. Once the plaster hardens, the supporting pedestal is undercut and the block turned over. Hand tools are then used to remove any excess matrix from the bottom of the block and a plaster and burlap cap constructed on the inverted bottom of the block using the same methods described above. When all layers of plaster are dry and hard, the completed plaster “jacket” is then labeled with a field number and north arrow and removed from the field. Depending on the size, complexity, and number of plaster jackets, recovery may require several hours to several days to complete. The discovery of a concentration of large vertebrate fossils (e.g., a bone bed) would require more time (e.g., several days) for recovery.

A2.2.4 MICRO-VERTEBRATE FOSSIL RECOVERY

Many significant fossils often are too small to be readily visible in the field (e.g., small mammal teeth, fish otoliths, lizard limb bones), but are nonetheless significant and worthy of attention because of their potential to provide information concerning paleoenvironments, paleoclimates, and geologic age. If sedimentary horizons are observed that either contain micro-vertebrate fossils, or appear to have high potential to contain such fossils, these horizons shall be sampled by collecting bulk quantities of sedimentary matrix. These bulk matrix samples then undergo laboratory processing in order to isolate the microfossils. Specific procedures for recovery of micro-vertebrates are described below. It should be emphasized that once a bulk matrix sample has been collected and removed from the Project Area, construction activities can resume.

For micro-vertebrate fossils (e.g., small mammal, bird, reptile, amphibian, or fish remains) guidelines developed by the Society of Vertebrate Paleontology (SVP, 2010) define an adequate sample as comprising “...4.0 cubic meters (6,000 lbs. or 2,500 kg) of matrix for each site, horizon or paleosol.” However, the uniqueness of the micro-vertebrate fossils recovered may justify screen washing even larger amounts... as determined by the Project Paleontologist.” It is understood that conditions in the field may be such that recovery of 6,000 lbs. matrix samples is not possible, and a smaller matrix sample may be warranted at the discretion of the Project Paleontologist. Ideally,

micro-vertebrate fossil sites will occur within a layered sequence of strata from which several successive strata may yield individual micro-vertebrate fossil horizons. A maximum of one bulk matrix sample per fossil horizon shall be collected. This sample shall be assumed to contain a representative assemblage of fossils preserved in that fossil horizon. For each sample collected, it is recommended that a 200 lb. (90 kg) subsample be initially processed to determine the fossil productivity of the larger sample. Generally, if five or more complete mammal teeth are recovered from the subsample, the remainder of the sample should be processed. If fewer teeth are recovered, processing should cease.

A2.2.5 PALEOBOTANICAL FOSSIL RECOVERY

Paleobotanical specimens typically occur in fine-grained, laminated strata (e.g., shale) and will require special recovery techniques. When fossil plant sites are discovered, they initially should be evaluated in terms of fossil preservation, specimen abundance, and taxonomic diversity to determine the level of sampling. For sites with well-preserved and relatively complete leaves, an adequate sample would aim to recover at least 20 specimens of each recognized leaf type (species or morphotypes). Large blocks (>2 feet in diameter) of sedimentary rock typically can be hand quarried from the temporary outcrop and then split along bedding planes to reveal compressed fossil plant material (e.g., leaves, stems, and flowers). Individual slabs are then wrapped in tissue paper or newsprint to minimize destruction of the fossils during desiccation. In some cases, specimens that are delaminating or flaking may need to be coated with special consolidants (e.g., Vinac or Butvar). It should be emphasized that once an adequate sample has been collected and removed from a paleobotanical discovery site, construction activities can resume.

A2.2.6 TIME REQUIRED FOR FOSSIL RECOVERY

As discussed above in Section A2.2.4, the vast majority of fossil salvages can be accomplished relatively quickly, requiring a few minutes to a few hours of focused recovery work to complete. However, recovery of large vertebrate fossils or concentrations of vertebrate fossils may require several days to weeks to complete. In many cases, fossil recovery may be expedited through the temporary use of one-site heavy equipment to remove sedimentary overburden, collect bulk matrix samples, and/or lift plaster jackets. It should also be emphasized that avoiding or minimizing construction delays can be achieved by diverting earthwork operations to other areas of the project area while fossil recovery work is under way.

A3.0 POST CONSTRUCTION

In the event fossils are discovered and salvaged, the fossils will be prepared, identified, catalogued, and stored in a recognized professional repository and a Final Paleontological Mitigation report written that summarizes the results of pre-construction, during-construction, and post-construction activities (if applicable) and findings. If no fossils are salvaged over the course of monitoring, an abbreviated Final Paleontological Mitigation report shall be prepared.

A3.1 FOSSIL PREPARATION

Fossil remains collected during the monitoring and salvage portion of the project will be cleaned, repaired, and/or screenwashed as described below. Fossil preparation may be conducted at the laboratory of the contracted Project Paleontologist or the designated repository, and shall follow the standards of the designated repository. Prior to commencement of work, an estimate of fossil

preparation costs should be developed based on number and type of specimens, preparation labor rates, preparation supply needs.

A3.1.1 SPECIMEN PREPARATION

Preparation of fossil specimens will involve removal of extraneous and concealing sedimentary matrix from specimens using various mechanical methods including pneumatic air scribes, micro-sandblasters, and simple hand tools (hammers, chisels, X-acto knives, brushes, dental picks, and pin vises). Fossil preparation will also involve consolidation of weak or porous specimens by the application of specialized media including polyvinyl acetate resins (e.g., Vinac), acrylic resins (e.g., Acryloid), or polyvinyl butyral resins (e.g., Butvar). Repair of broken/damaged specimens will require the use of various adhesives including cyanoacrylate glues (e.g., Zap) polyvinyl acetate emulsions (e.g., carpenter's glue), and polyvinyl butyral resins (e.g., Butvar).

A3.1.2 SCREENWASHING

Recovery of micro-vertebrate fossils will be accomplished by screenwashing bulk samples of fossil-bearing sedimentary matrix. The process begins by breaking large blocks into 2-3 cm cubes to facilitate air-drying of the matrix. Once dry, the matrix is placed into water-filled 5 gallon plastic buckets to soak for no less than 15 minutes with stirring. The slurry is then poured onto nested 20 (0.84 mm openings) and 30 (0.59 mm) mesh stainless steel screens placed in water-filled troughs. Manual agitation of the screens forces the fine clays and silts through the mesh and concentrates the coarser sand and fossil material on the screens. The screens are then placed at a tilt facing the sun to dry. Once dry, the coarse concentrate is transferred into plastic sample bags and labeled with all pertinent site locality data.

A3.1.3 HEAVY LIQUID FLOATATION

Screenwashed concentrates can be further concentrated by the use of heavy liquids (e.g., zinc bromide and/or tetrabromoethane) to concentrate particles of equal density. Generally, fossil bones and teeth sink along with heavy mineral grains (e.g., magnetite) while lighter quartz and feldspar mineral grains float. This separation process produces a very rich concentration of fossil remains, typically isolated teeth of small mammals (e.g., rodents).

A3.1.4 PALEOBOTANICAL PREPARATION

Preparation of plant fossils will involve first splitting slabs of mudstone/siltstone matrix along laminations to reveal individual or composite leaf impressions. Any remaining matrix still obscuring the impressions will then be removed with X-acto knives. The exposed impressions may require stabilization with specialized media (e.g., Vinac or Butvar).

A3.2 FOSSIL CURATION

Following preparation of salvaged fossil remains the specimens will be sorted/picked, identified, and catalogued as described below. Fossil curation may be overseen by the contracted Project Paleontologist, or by the designated repository, and shall follow the standards of the designated repository. Prior to commencement of work, an estimate of fossil curation costs should be developed based on number and type of specimens, curation labor rates, curation supply needs.

A3.2.1 SORTING/PICKING

Fossils require sorting/picking to group together specimens of the same taxon (e.g., species and/or genus) into individual taxon lots.

A3.2.2 IDENTIFICATION

Once sorted, individual taxon lots will then be identified to the lowest taxonomic level practical (e.g., family, genus, and/or species).

A3.2.3 CATALOGUING

Sorted and identified specimens are then assigned unique specimen catalogue numbers and entered into an electronic catalogue database. A specimen number may represent a single fossil specimen or a batch of specimens belonging to a single species. Catalogue numbers are written on individual specimens using India ink on a patch of white acrylic paint. Curation also involves placement of taxon lots into archival specimen trays with labels containing relevant taxonomic, geologic, and geographic information.

A3.2.4 LOCALITY DATA

Formal descriptions of fossil collection locality records, including geographic, geologic, taphonomic, and collection data, need to be compiled and stored electronically with the specimen catalogue data.

A3.3 FOSSIL STORAGE

For any recovered fossils from BLM managed lands within the Buena Vista Hills MDP, the fossils will be professionally curated and stored in the designated professional repository, as outlined in Section A1.2. The repository will professionally curate and adequately store the donated fossils, though ownership of the fossils will be retained by the BLM. Adequate storage shall include conservation of specimens in a stable environment away from flammable liquids, corrosive chemicals, organic materials subject to mildew, and sources of potential water damage. Typically, this is accomplished by placing curated specimens in archival quality, steel drawers and cabinets, which are housed in climate-controlled collection rooms. Specimens shall be available for study by future researchers, students, and citizen scientists, and thus shall be stored in a fashion that allows for retrieval of individual specimens and associated collection data. Specimen storage should be accompanied by supporting data (e.g., field notes, GPS data, photographs, geologic maps, stratigraphic reports), and fossil preparation data (e.g., description of preparation techniques and materials used for individual specimens).

For any fossils recovered from private surface lands for projects conducted on split-estate, fee land, or connected action projects, the fossils are the property of the surface land owner. In such instances, the surface land owner is strongly encouraged to donate fossils to a professional repository, who will curate and adequately store the fossils, as outlined above.

A3.4 FINAL PALEONTOLOGICAL MITIGATION REPORT

A Final Paleontological Mitigation report (PMR) will be completed that presents the results of the implementation of this paleontological mitigation plan, for projects that recover fossils and also for projects where no fossils are discovered. For projects that recover fossils, the report will include discussions of the methods used, stratigraphic section(s) exposed, fossils collected, and significance of the recovered fossils relative to the research themes and questions. A complete inventory of salvaged, prepared, and curated fossils will be included. For projects where no fossils are recovered, an abbreviated technical report that summarizes the field methods used and stratigraphy exposed should be completed. All PMR's will be submitted to the BLM Bakersfield Field Office for review and approval.

**United States Department of Interior
Bureau of Land Management
Bakersfield Field Office**

Environmental Assessment

**California Resources Elk Hills, LLC (CREH)
2 APDs in Buena Vista Hills
DOI-BLM-CA-C060-2022-0089-EA
Programmatic Project #133**

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Chapter 1. Purpose and Need for Action

PURPOSE AND NEED

California Resources Elk Hills, LLC (CREH) has submitted one Application for Permit to Drill (APD) to drill wells: 4-5H-6D & 626H-26B on federal mineral leases CAS 019343 & CAS 019577 in Section 6, T. 32S., R. 24E., MDB&M and Section 26, T. 31S., R. 23E., MDB&M. The proposed project would occur on federal lands containing BLM administered subsurface minerals within the Buena Vista Oilfield, Kern County. Project implementation would include the expansion and grading of two existing well pads, installation of associated power poles and pipelines, and the drilling of two new wells.

The purpose of the proposed action is to respond to the APDs submitted by California Resources Elk Hills, LLC to drill two new oil wells and stage associated facilities required to increase production on federal mineral leases CAS 019343 and CAS 019577.

The need for the action is established by BLM's responsibility under the Mineral Leasing Act of 1920 as amended, the Mining and Minerals Policy Act of 1970, the Federal Land Policy and Management Act of 1976, the National Materials and Minerals Policy, Research and Development Act of 1980 and the Federal Onshore Oil and Gas Leasing Reform Act of 1987 to allow reasonable access to develop a federal oil and gas lease.

This Environmental Assessment (EA) has been prepared in compliance with the National Environmental Policy Act (NEPA) and other relevant federal and state laws and regulations. The purpose of this document is to disclose and analyze the environmental consequences that are anticipated from the expansion and grading of two existing well pads, installation of associated power poles and pipelines, and the drilling of two new wells on existing federal mineral leases (CAS 019343 & CAS019577) in the Buena Vista Oilfield. BLM will decide whether to approve, approve with conditions, or deny the two APDs submitted by CREH.

CONFORMANCE WITH BLM LAND USE PLAN

Title 43 CFR 1610.5 Requires resource management authorizations and actions conform to the approved resource management plan. The proposed action has been reviewed for conformance with the Bakersfield Resource Management Plan approved on December 22, 2014. The BLM has determined the proposed action conforms with the land use plan as the proposed action is specifically provided for in the land use plan objective MM-O-1 "Facilitate reasonable, economical, and environmentally sound exploration and development of leasable minerals while minimizing impacts to other resources" (BLM, 2014; pg 75). The proposed action is located on lease CAS0019343, which was issued prior to the 2014 Bakersfield RMP. The 2014 Bakersfield RMP recognizes all valid existing rights (BLM, 2014; pg 1).

RELATIONSHIP TO STATUTES, REGULATIONS AND OTHER PLANS

Oil and Gas Laws and Regulations

The BLM manages lands that contain extractable minerals including oil and gas. These minerals are managed in accordance with the *Mineral Leasing Act* of 1920, as amended; the *Mining and Minerals Policy Act* of 1970; the *Federal Onshore Oil and Gas Leasing Reform Act* of 1987; 43 CFR Part 3160 (including Onshore Orders 1, 2, 6, and 7) and 43 CFR Part 3170; the *Energy Policy Act* of 2005; and other laws, regulations, orders, and in accordance with all applicable state, county, and local laws and ordinances. BLM requires existing lessees to strictly adhere to all laws, regulations, and policies that govern oil and gas leases, while at the same time recognizing that existing leases grant the lessee certain rights. No additional requirements can be placed on an existing lessee that conflict with the rights already granted, however the lessee may elect to commit to new measures discussed with BLM.

Onshore Order No. 1 identifies the requirements necessary for approving proposed oil and gas exploration, development, and servicing wells on all Federal and Indian oil and gas leases. This includes all components required for the management of fluid minerals including completed Form 3160-3, well plat, drilling plan, surface use plan, bonding, operator certificate, onsite inspection, processing, reclamation, and Sundry Notices. Onshore Order No. 1 also identifies processing timelines and the valid period of approvals. Onshore Order No. 2 provides requirements and standards for drilling and abandonment. 43 CFR 3173 establishes standards to ensure that oil and gas are properly and securely handled to prevent loss and theft, and to enable accurate measurement and production accountability. 43 CFR 3174 establishes minimum standards for the accurate measurement of all oil. 43 CFR 3175 establishes minimum standards for the accurate measurement of gas. Onshore Order No. 6 provides the requirements and standards for conducting oil and gas operations in an environment known to or expected to contain hydrogen sulfide (H₂S) gas. Last, Onshore Order No. 7 provides the methods and approvals necessary to dispose of produced water associated with oil and gas operations.

Endangered Species Act

The Endangered Species Act of 1973 (ESA) requires federal agencies to complete consultation with the United States Fish and Wildlife Service (FWS) for actions determined that they “may affect” federally listed species or designated critical habitat. The ESA also requires federal agencies to use their authorities to carry out programs for the conservation of endangered and threatened species.

Clean Air Act

The San Joaquin Valley Air Pollution Control District (SJVAPCD) has state air quality jurisdiction over the project area. The SJVAPCD is classified as nonattainment for ozone and PM_{2.5}. The Section 176(c) of the Clean Air Act (CAA), as amended (42 U.S.C. 7401 et seq.) and regulations under 40 CFR part 93, subpart B with respect to conformity of general Federal actions to the applicable State Implementation Plan (SIP) apply to projects within nonattainment and maintenance areas. Under those authorities “no department, agency or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license or permit, or approve any activity which does not conform to an applicable implementation plan.”

Under CAA 176(c) and 40 CFR part 93 subpart B, a Federal agency must make a determination that a Federal action conforms to the applicable implementation plan before the action is taken.

National Historic Preservation Act of 1966, as amended

Section 106 of the National Historic Preservation Act (NHPA) requires agencies to make a reasonable and good faith effort to identify historic properties that may be affected by an agency's undertakings and take those effects into account in making decisions. The BLM process for implementing this NHPA requirement is set forth in the *State Protocol Agreement Among the California State Director of the Bureau of Land Management and the California State Preservation Officer and the Nevada State Historic Preservation Officer (2019)*. Pursuant to 36 CFR 800.8(a), the BLM has taken efforts to coordinate compliance with Section 106 and its implementing regulations at 36 CFR 800 with any steps taken to meet the requirements of the National Environmental Policy Act (NEPA).

Paleontological Resources Preservation Act

This Act was passed as part of the Omnibus Public Lands Management Act of 2009 and requires Interior agencies as well as the Forest Service to manage and protect paleontological resources on Federal land. This includes developing plans for the inventory, monitoring, and scientific and educational use of paleontological resources. The Act also describes criteria for issuing permits to collect and study paleontological resources on Federal land.

Clean Water Act

The Clean Water Act of 1977 establishes authority to regulate any action where pollutants may be discharged into waters of the United States. Section 303 of the federal Clean Water Act requires states to adopt water quality standards that "consist of the designated uses of the navigable waters involved and the water quality criteria for such waters based upon such uses." In California, these water quality standards and the administrative policies and procedures for protecting state waters are disclosed in regional water quality control board basin plans. Hence, California's basin plans serve as regulatory references for meeting both State and federal requirements for water quality control (40 CFR Parts 130 and 131). These basin plans establish standards for ground waters in addition to surface waters, unlike the federal program.

The Clean Water Act also established the National Pollutant Discharge Elimination System (NPDES) permit program, regulating point source discharges of pollutants into waters of the United States. Section 402 of the Clean Water Act provides that storm water discharges associated with industrial activity and construction must be authorized under a NPDES permit. Clearing, grading, and excavation projects that disturb more than one acre are required to obtain a NPDES storm water discharge permit under EPA regulations, though certain regulations such as 40 CFR parts 122.26 (a)(2), (e)(8), and (c)(1)(iii) codify exemptions for oil and gas operations. However, in California, oil and gas operations are not required to obtain a storm water discharge permit (Construction General Permit Order 2009-0009-DWQ) under the authority of the Clean Water Act and the Code of Federal Regulations. This does not exempt oil and gas operations from section 404 of the Clean Water Act, which establishes the authority to issue permits for dredged or fill material.

Also, the State may exempt specific aquifers from particular beneficial use designations if the aquifer meets certain criteria, such as high TDS, contamination, low yield, and regulation as a geothermal energy source or exemption for the purpose of underground fluid injection pursuant to 40 CFR, Section 146.4 (CRWQCB – CVR, 2004).

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) of 1974 regulates the nation's public drinking water supply to protect public health. SDWA authorizes the U.S. EPA to set national health-based standards for drinking water to protect against both naturally occurring and man-made contaminants that may be found in drinking water.

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) of 1976 establishes a regulatory structure for the management and disposal of solid and hazardous wastes. Solid wastes consist of any discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities. Solid wastes include both hazardous and nonhazardous waste. A waste may be considered hazardous if it is ignitable, corrosive, reactive, or contains certain amounts of toxic chemicals. Subtitle C of the RCRA creates a cradle-to-grave management system for hazardous waste, governing the generation, transportation, treatment, storage, and disposal of hazardous wastes. Subtitle D regulates the management of nonhazardous solid waste, establishing minimum federal technical standards and guidelines for state solid waste plans in order to promote environmentally sound management of solid waste.

Oil and gas exploration and production (E&P) wastes that are intrinsically derived from primary field operations are exempt from Subtitle C hazardous waste regulations, although Subtitle D, other federal regulations, and state regulations still apply. Exempt E&P wastes include any produced fluids or waste otherwise generated by contact with the oil and gas production stream during the removal of produced water or other contaminants from the product. Some specific E&P wastes designated as exempt include produced water, drilling fluids, drill cuttings, rig-wash, work-over wastes, and well completion, treatment, and stimulation fluids. Examples of non-exempt wastes include unused fracturing fluids or acids, waste solvents, used equipment lubricating oils, and caustic or acid cleaners.

Chapter 2. Proposed Action and Alternatives

ALTERNATIVE 1: PROPOSED ACTION

California Resources Elk Hills, LLC (CREH) has submitted one Application for Permit to Drill (APD) to drill wells: 4-5H-6D & 626H-26B on federal mineral leases CAS 019343 & CAS 019577 in Section 6, T. 32S., R. 24E., and Section 26, T. 31S., R. 23E., MDB&M. The proposed project would occur on federal lands containing BLM administered subsurface minerals within the Buena Vista Oilfield. Project implementation would include the expansion and grading of two existing well pads, installation of associated power poles and pipelines, and the drilling of two new wells (**Figure 1 & Figure 2**).



FIGURE 1. California Resources Production Corporation
Proposed Well 4-SH-6D

Figure 1.



Figure 2. California Resources Production Corporation
Proposed Well 626H-26B

Figure 2.

CREH would be restricted to use of existing roads and approved areas of disturbance, including those approved with the APDs, during and following project implementation. During construction, CREH proposes to place all drilling equipment and materials on the proposed well pad's location. The pads would be cleared of unnecessary items following well completion.

Approximately 6,857 barrels (288,000 gallons) of fresh water would be used for dust abatement and drilling per well; all water would be obtained from the West Kern Water District and trucked to the project site. Fresh water would be applied to the surface for dust abatement and used during the drilling phase for intermediate/production casing, stimulation, and surface casing.

Produced fluid associated with the proposed well will be treated at the Buena Vista Hills reclaimed water system (owned and operated by CREH) located at Section 36B facility (T. 31S., R. 23E.) for processing. Processing can include de-oiling, biocide treatment, & filtration. The processed reclaimed water will be injected into Class II wells in accordance with CREH's underground injection permits under UIC project numbers #08006022, #08006020, or #08006009

CREH has attached a copy of the NOA (Notice of Applicability) of Water Quality Order 2003-0003-DWQ issued by the regional water board. CREH will not be disposing of drilling water off-site. All drilling water will be contained within the permitted drilling sump. Drilling water will be allowed to evaporate prior to sump closure activities. The sump will be closed in accordance with the NOA.

Non-hazardous, water-based mud would be used in drilling operations. All cuttings and drilling fluids would be collected in a reserve pit measuring 250 feet by 30 feet and 13 feet in depth. Fluids would be solidified, and cuttings will remain in the reserve pit. Prior to pit closure testing would be conducted, and all operations would be in compliance with all Federal, Tribal, State, and local laws and requirements.

Well failures are not anticipated in the new well proposed in the Buena Vista oilfield. CREH proposes to use current best available technologies to drill and complete the proposed well; modern controls and monitoring will be in place to prevent failures of mechanical well integrity. All aspects of well completions and design are conducted according to American Petroleum Institute standards whereby specifications and recommended practices are detailed to ensure mechanical well integrity.

The Buena Vista field does not have any protected groundwater, but efforts are still made to insure well integrity. The Tulare aquifer, which is exempt, is isolated from the contents of the well during drilling and production operations by a combination of steel casing and cement sheaths, and other mechanical isolation devices installed as a part of the well construction process. The impermeable rock formations that lie between the hydrocarbon producing formations and the Tulare have isolated the hydrocarbon accumulation over millions of years. The construction of the well is done to prevent communication (the migration and/or transport of fluids between these subsurface layers).

The primary method used for isolating the Tulare during drilling operations consists of drilling the wellbore through the exempt aquifer, immediately installing a steel pipe (called casing), and

cementing this steel pipe into place. All state drilling regulations specifically address groundwater protection, including requirements for the surface casing to be set below the lowest groundwater aquifer. The steel casing isolates the zones from material inside the wellbore during subsequent drilling operations and, in combination with other steel casing and cement sheaths that are subsequently installed, isolates the groundwater with multiple layers of protection for the life of the well. The subsurface zone or formation containing hydrocarbons produces into the well, and that production is contained within the well all the way to the surface. This containment is what is meant by the term “well integrity.” Moreover, regular monitoring takes place during drilling and production operations to ensure that these operations proceed within established parameters and in accordance with the well design, well plan, and permit requirements.

CREH has stated that there are no plans to conduct well stimulation activities regulated by California Senate Bill No. 4 (hydraulic fracturing, matrix or fracture acidization) on the proposed well because the reservoir characteristic and geologic rock properties in the Antelope formation within the project area do not require well stimulation to produce.

Design Features/Additional Conditions of Approval (COAs) for Surface

The following Design Features and conditions of approval are part of the proposed action:

CREH shall comply with all applicable Federal, Tribal, State, and local laws during project implementation.

Biological Resources

This project would be covered as project #133 under the 2017 Oil and Gas Programmatic Biological Opinion (08ESMF00-2016-F-0683). The 2017 Oil and Gas Programmatic Biological Opinion provides take coverage for authorization of individual projects occurring on surface and subsurface lands administered by the BLM in Kings and Kern Counties that disturb less than 10 acres of habitat or that encompass linear actions less than 10 miles long. This project occurs in Kern County and disturbs 1.276 acres of habitat, thus satisfying both requirements for coverage under the 2017 Oil and Gas Programmatic Biological Opinion. Compliance with the Project Specific Provisions (**Attachment 1**) of this Opinion is required. **A preliminary estimate of compensation is 4.421 compensation acres (1.155 permanent acres compensated at 3:1 = 3.465 + 0.121 temporary acres compensated at 1.1:1 = 0.133 + 0.823).**

In addition, CREH shall comply with all the “Avoidance & Mitigation Actions” recommended by consulting Biologist by Kimberly Fiehler (West Kern Environmental Consulting, LLC) in her April 20th, 2022, Sensitive Species Review Form:

1. A biological monitor will be present during initial ground disturbance and will be on-call and notified (661) 448-3131 if listed species are observed in the project area subsequent to initial ground disturbance.
2. A Threatened and Endangered Species training session will be given to construction personnel prior to project implementation.

3. A pre-activity survey shall be conducted on the project site within 14-days of project construction. Should a potential kit fox den be observed during the 14-day pre-construction survey, CRC will implement monitoring measures based on guidelines in the USFWS Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance (USFWS 2011).
4. Project site boundaries shall be clearly delineated by stakes, flagging and/or rope to minimize inadvertent degradation or loss of adjacent habitat during well pad and pipeline installation activities.
5. All construction equipment, staging areas, material and personnel shall be restricted to previously disturbed areas (roads, well pads, and other non-habitat areas).
6. All construction pipes, culverts, or similar structures stored at the construction site overnight having a diameter of two (2) inches or greater shall be inspected thoroughly for wildlife species before being buried, capped, or otherwise used or moved in any way. Pipes laid in trenches overnight shall be capped. If during construction a wildlife species is discovered inside a pipe, that section of pipe shall not be moved or, if necessary, moved only once to remove it from the path of construction activity, until the wildlife species has escaped.
7. A speed limit of 10 mph (MAX) will be enforced to avoid incidental take of wildlife along roadways.
8. All excavated steep-walled holes or trenches in excess of three feet in depth left open for more than one (1) workday shall be provided with one or more escape ramps constructed of earth fill or other material to prevent entrapment of endangered species or other animals. Ramps shall be located at no greater than 1,000-foot intervals (for pipelines etc.) and at not more than 45-degree angles. Trenches shall be inspected for entrapped wildlife each morning prior to onset of construction activities and immediately prior to the end of each working day. Before such holes or trenches are filled, they shall be inspected thoroughly for entrapped animals. Any animals discovered shall be allowed to escape voluntarily without harassment before construction activities resume or removed from the trench or hole by a qualified biologist and allowed to escape unimpeded.
9. All food related trash such as wrappers, cans, bottles, and food scraps shall be disposed of into closed containers and be removed daily from the site.
10. Feeding of wildlife is strictly prohibited.
11. CREH staff and/or its contractors should designate a specific individual as a contact representative between CRC and all applicable federal, state, and local agencies to oversee compliance with these avoidance mitigation measures.
12. Firearms are prohibited on site.
13. Pets are prohibited on site.
14. Follow BLM General Guidelines for Conserving Habitat and Minimizing Project Impacts.

Cultural Resources

In the event of inadvertent discovery of cultural resources during project implementation, personnel responsible for the project shall immediately notify the BLM Bakersfield Field Office Cultural Resource Staff and Field Manager (661-391-6000). All work at the site of discovery, and

in any other locations where damage to the discovery could occur, shall cease until written approval is received from the BLM.

If human remains are inadvertently discovered on BLM surface land, all activity will immediately cease surrounding the unanticipated discovery. The holder will ensure that the discovery is secured and protected and will immediately notify the BLM Field Manager (661-391-6000). The BLM will adhere to current regulations regarding the treatment of human remains (Native American Graves Protection and Repatriation Act, 43 CFR 10). Access and use of the area can proceed with written approval from the Field Manager once the appropriate level of review has been determined and completed.

Paleontological Resources

This project is located on BLM surface lands and split estate surface lands, with a PFYC U (Unknown aged alluvial deposits) for the BLM surface estate well (4-5H-6D) and PFYC 4 (Tulare Formation) for the split estate well (626-26B). PFYC U formations have an unknown potential for containing vertebrate fossils or scientifically significant invertebrate fossils, while PFYC 4 formations have a high likelihood of containing these fossils. A Paleontological Resource Monitoring and Mitigation Plan has been prepared for all O&G projects within the Buena Vista Hills leases for BLM surface estate projects and has been attached to the Conditions of Approval (COA). CRC, the private surface estate landowner for the split estate well (626-26B), has requested to follow the following Paleontological Compliance procedures:

- All construction personnel will be trained on the importance of paleontological resources and to notify CRC's Health, Safety and Environment Department of the discovery of any archeological, historical, or vertebrate fossil found. All work will stop within 50' of the discovery until a paleontologist reviews the discovery. Construction personnel shall be instructed that unauthorized collection or disturbance of fossils is unlawful.'

In the event of inadvertent discovery of paleontological resources during project implementation, the BLM Field Office Paleontological Staff and the BLM Field Manager (661-391-6000) shall be immediately notified by personnel responsible for the project. All work at the site of discovery, and in any other locations where damage to the discovery could occur, shall cease until written approval by the BLM.

Construction and Interim Reclamation

Reclamation activities will be initiated in the fall, starting no earlier than October to maximize use of the wet season. All reclamation areas will be monitored for a minimum of five years, or until the BLM determines the locations have been successfully reclaimed. Reclamation progress will be reviewed annually in the fall season to determine if additional re-seeding activities are required or if fencing and signage need to be repaired.

All permanent above-ground structures (e.g., production equipment, etc.) not subject to safety requirements shall be painted to blend with the natural color of the landscape. The paint used will

be a color which simulates “Standard Environmental Colors.” The colors selected for the project location are Covert Green or Carlsbad Canyon.

At the beginning of construction, topsoil (approximately the top four inches of soil) shall be removed from the project area and stockpiled on an existing pad or previously disturbed surface in close proximity to the project site. Subsequent to well completion, topsoil will be re-applied to the cut and fill slopes, as well as the sump. “Well completion” is a technical term used to describe the final phase of well drilling; “well completion” is not synonymous with the final phase of project implementation. Prior to applying topsoil to the sump, it will be cleaned, ripped to a minimum depth of 12 inches, and re-contoured to match the surrounding topography. Remaining topsoil will be stockpiled on an existing well pad or other previously disturbed surface and retained for future reclamation. Topsoil will be retained for no more than one year.

All practicable measures will be taken to minimize erosion and stabilize disturbed soils. The following types of interim stabilization or similar methods may be used if necessary: jute netting, hydro-mulch, straw wattles, or crimped straw mulch.

Management of Noxious Weeds

A site-specific weed control Environmental Assessment (EA) and a Pesticide Use Permit (PUP) must be completed before any use of pesticides on BLM lands. This can be a lengthy process and requires specific information, public notification, and review by the BLM State Office. Currently, the applicant does not have these approvals in place. Therefore, no herbicide treatment is authorized at this time.

Final Reclamation

Disturbed lands shall be re-contoured to conform with existing undisturbed topography unless the BLM determines that re-contouring would result in negative impacts to special status species. No depressions shall be left that trap water or form ponds. All portions of final reclamation may be subject to additional cultural resources and paleontological inventory and may require a permit. The reclaimed landscape shall have characteristics that approximate the visual quality of the adjacent area with regard to location, scale, shape, color and orientation of major landscape features and meet the needs of the planned post disturbance land use.

Final reclamation shall specifically achieve the following:

1. The reclaimed area shall be stable and exhibit none of the following characteristics:
 - a. Large rills or gullies (greater than 6 inches deep).
 - b. Perceptible soil movement or head cutting in drainages.
 - c. Slope instability on, or adjacent to, the reclaimed area in question.

2. The soil surface must be stable and have adequate surface roughness to reduce runoff and capture rainfall and snow melt. Additional short-term measures, such as the application of mulch, shall be used to reduce surface soil movement.
3. Vegetation production and species diversity (including shrubs) shall approximate the surrounding undisturbed area (50-150% of the adjacent species composition and cover). The vegetation shall stabilize the site and support the planned post disturbance land use, provide for natural plant community succession and development, and be capable of renewing itself. This shall be demonstrated by:
 - a. Successful onsite establishment of species included in the planting mixture or other desirable species.
 - b. Evidence of vegetation reproduction, either spreading by rhizomatous species or seed production.
4. Habitat Restoration
 - a. Restoration will be required on unused portions, including abandoned, unused, or unnecessary roads, of the project area or oil and gas lease when deemed necessary by the BLM to maintain or improve habitat values. Restoration will be required when reserve area (Red Zone) and habitat corridor (Green Zone) limits are exceeded and when a project or lease is abandoned. Restoration activities will be supervised by an onsite monitoring biologist.
 - b. The following are examples of actions that may be required as part of restoration:
 - i. All trash will be removed from the site and disposed of properly.
 - ii. All cement, asphalt, and oil-contaminated soils will be removed from the site and disposed of properly.
 - iii. All pipelines and other oilfield infrastructure no longer in use will be removed from the site and disposed of properly.
 - iv. Topographic contours will be restored to the maximum extent possible.
 - v. Non-compacted soils or areas previously deep ripped will be disked to a depth of approximately 8 inches.
 - vi. Compacted sites will be deep ripped to a depth of 12 to 18 inches.
 - vii. Slopes greater than 30 per cent will be treated by erosion control methods such as disking along the contour, imprinting, mulching, or installing wattles.
 - viii. Sites will be seeded using methods such as drill or broadcast seeding with a site-appropriate seed mix, approved by the BLM Botanist. Exact seeding mixes and rates will depend on the site characteristics, the species chosen, and the current availability of native seed. Seed mixes will include dominant shrubs and native grasses and herbs compatible with the adjacent plant community. The best time for seeding is generally late summer to early fall prior to the onset of the rainy season.

- ix. Sites will be considered restored when it can be documented that they support functional, native habitat. Evidence of attainment of this goal will be provided by the project applicant. Restoration in drainages, streambeds, and similar habitats where water is a substantial component may require conformance with conditions of a CDFW Streambed Alteration Agreement or other state or local permit. Demonstration of restoration may include documentation of:
1. Visual continuity or similarity with adjacent native, undisturbed habitat or a designated reference site.
 2. Topography that follows natural contours and allows for the natural flow of water across the landscape.
 3. Indiscernible boundary lines or areas between the disturbed and undisturbed areas.
 4. Presence of habitat that supports threatened and endangered species.
 5. Vegetation community composition within the normal or desired range. Ratios of native and non-native plants within normal or desired parameters. Presence and abundance of reproducing plants. Presence and abundance of biological soil crusts.
 6. Evidence or presence of animals or animal sign on the site. Presence and abundance of desired species. Evidence, presence, and abundance of reproducing species.
 7. Evidence of species diversity for both plants and animals.
 8. Evidence of soil stability (minimal erosion).
 9. Absence of signs of vehicle or other trespass. Absence of trash and contaminated soils.

ALTERNATIVE 2: NO ACTION

Under this alternative, BLM would not approve the two APDs, submitted by CREH. By denying the application, the operator would be denied the opportunity or right to develop and produce federal mineral leases CAS 019343 and CAS 019577 in Section 6, T. 32S., R. 24E., & Section 26, T. 31S., R. 23E., MDB&M in the Buena Vista Oilfield.

Chapter 3. Affected Environment

This chapter briefly describes the physical and regulatory environment for elements that may be affected by the proposed action.

The following elements of the human environment were considered but determined to be either not present or unaffected by the proposed action and will therefore not be addressed further in this analysis:

- This project location does not occur within a designated Area of Critical Environmental Concern or within National Conservation Lands.

- The project does not contain essential fish habitat, and there are no wetlands or riparian zones in the project area.
- The project would not disproportionately affect low income or minority populations.
- The proposed project would not affect recreational experience as it occurs within a BLM administered oil and gas lease that does not currently attract recreational use, nor is it anticipated to attract significant recreational use in the future.
- Visual resources would not be impacted since the project occurs within a Class IV Visual Resource Management area that is not visible from any main access road or highway and is not likely to attract attention.
- Cultural resource surveys were conducted for all areas which could be potentially affected by the proposed project (BLM Cultural Resource Inventory Report # CA-160-C/V-770). No cultural resources were identified in the Area of Potential Effect (APE). The proposed work will not impact cultural resources.
- Certified Letters and associated follow-up emails were sent to the Tribal Chairman and staff contacts for tribes known to be affiliated with the lease and project area for large block surveys (TNL 16-17 & 21-21). No responses were received. No Tribal sites of religious or cultural significance were identified.
- This project is located on BLM surface lands and split estate surface lands, with a PFYC U (Unknown aged alluvial deposits) for the BLM surface estate well (4-5H-6D) and PFYC 4 (Tulare Formation) for the split estate well (626-26B). PFYC U formations have an unknown potential for containing vertebrate fossils or scientifically significant invertebrate fossils, while PFYC 4 formations have a high likelihood of containing these fossils. A Paleontological Resource Monitoring and Mitigation Plan has been prepared for all O&G projects within the Buena Vista Hills leases for BLM surface estate projects and has been attached to the Conditions of Approval (COA). CRC, the private surface estate landowner for the split estate well (626-26B), has requested to follow the following Paleontological Compliance procedures:
 - All construction personnel will be trained on the importance of paleontological resources and to notify CRC's Health, Safety and Environment Department of the discovery of any archeological, historical, or vertebrate fossil found. All work will stop within 50' of the discovery until a paleontologist reviews the discovery. Construction personnel shall be instructed that unauthorized collection or disturbance of fossils is unlawful.'

Issues for detailed analysis

- How would emissions generated by construction activities (e.g. generation of dust, burning of diesel) and subsequent operation of the well impact air quality?
- How would emissions generated by construction activities, subsequent operation of the well, and downstream use of the produced petroleum contribute to increases in GHGs (CO₂e) impact climate change?
- How would construction activities (e.g. drill rig noise, vehicle traffic), ongoing operations (e.g. vehicle traffic) and habitat disturbance impact threatened and endangered species?
- How would construction activities (e.g. grading, drilling) impact soil productivity and erodibility?

- How would drilling through aquifers impact drinkable groundwater? How would construction and operations activities (potential for erosion, sediment carry, spills and leaks) impact surface water? How would the use of water for drilling and dust abatement impact availability of fresh water for other beneficial uses?

Air Quality

The proposed project area is located in Kern County, California, and within the San Joaquin Valley Air Basin. At the state level, air regulatory duties lie with the California Air Resources Board (CARB) and at the federal level with the U.S. Environmental Protection Agency (EPA), Region IX. Oversight and rulemaking authority for air quality matters in California have been delegated to the county (District) level. The BLM has air program responsibilities through its permitting programs and Clean Air Act (CAA) requirements to analyze all actions for conformity to air quality plans.

The federal Clean Air Act (CAA), as amended, and the California Clean Air Act (CCAA) contain the primary provisions relating to air quality. Provisions of the federal CAA that apply to BLM actions include the National Ambient Air Quality Standards (NAAQS), nonattainment area designation, the development of state implementation plans (SIPs), prevention of significant deterioration (PSD), air toxics, and federal conformity. The EPA, CARB, and regional air districts have issued rules to implement federal and state Clean Air Acts.

EPA uses “criteria pollutants” as indicators of air quality and has established for each of them a maximum concentration above which adverse effects on human health and the environment may occur. These threshold concentrations are called National Ambient Air Quality Standards (NAAQS) (<https://www.epa.gov/criteria-air-pollutants>). One set of limits (primary standard) protects health; another set of limits (secondary standard) is intended to prevent environmental and property damage. Under the federal CAA, the EPA has established NAAQS for seven criteria pollutants: ozone, respirable particulate matter (PM₁₀), fine particulate matter (PM_{2.5}), carbon monoxide, nitrogen dioxide, lead, and sulfur dioxide. California has established state Ambient Air Quality Standards for the same criteria pollutants, plus an additional three pollutants (visibility reducing particulates, sulfates, and hydrogen sulfide). States may have standards that are more restrictive than the federal thresholds, but they cannot be less restrictive. Although more stringent, the State standards have no specific dates for attainment, unlike federal standards. Under State law, designations are made by pollutant, rather than by averaging time. A geographic area that meets or exceeds the primary standard is called an attainment area; areas that do not meet the primary standard are called nonattainment areas (<https://www.epa.gov/clean-air-act-overview>).

Federal air quality standards for PM_{2.5} and ozone have been exceeded in the San Joaquin Valley air basin due to local and transported pollutants. This has resulted in the current designation of the air basin as a federal non-attainment area for PM_{2.5} and ozone under the NAAQS. The air basin has recently been designated as a federal maintenance area for PM₁₀. Based on the EPA 2010 designations, the primary pollutants of concern in the Project area are 8-hour ozone, PM₁₀, and PM_{2.5}. The remaining criteria pollutants are either unclassified or in attainment with the NAAQS.

The proposed project area is within the EPA Pacific Southwest Region 9 Planning Area; a State Implementation Plan (SIP) has been prepared for the planning area, which identifies sources of emissions and control measures to reduce emissions. In 2016, CARB updated the State Strategy for achieving emissions reductions toward bringing these areas into attainment with federal standards for ozone and PM_{2.5}. A San Joaquin Valley Supplement to the 2016 State Strategy was adopted in October 2018. The SIP mainly addresses stationary sources that have been identified as major contributors affecting regional air quality, such as power plants, facilities, etc.

District air quality plans that have recently been adopted and are relevant to the proposed Project include the *SJVAPCD 2016 Ozone Plan*, *2013 Plan for the Revoked 1-Hour Ozone Standard*, *2018 PM_{2.5} Plan*, and *2007 PM₁₀ Maintenance Plan*. These plans outline the strategy for achieving federal air quality standards by specific dates and identify control measures to reduce criteria pollutant emissions. Control measures identified in the *2007 Ozone Plan* reduce ozone precursor emissions, NO_x and Volatile Organic Compounds (VOCs). Particulate matter attainment strategies include control measures to reduce dust from unpaved roads and construction activities.

CAA regulations also address the release of hazardous air pollutants (HAPs): chemicals that are known or suspected to cause cancer or other serious health effects, such as reproductive effects, birth defects, or adverse environmental effects. Some compounds of this type are regulated as Toxic Air Pollutants (TAPs) by the State of California. EPA currently lists 189 compounds as HAPs, some of which, such as benzene, toluene, and formaldehyde, can be emitted from oil and gas development operations. NAAQS have not been set for HAPs; rather HAP emissions are controlled by source type- or industrial sector-specific regulations. Hydrogen sulfide (H₂S) gas is not regulated under the NAAQS or as a HAP. However, it is known to be hazardous, and is monitored for health and safety at oil and gas sites.

Applicable SJVAPCD Rules to Implement Air Quality Plans

Once air quality attainment demonstration Plans are adopted, the reductions necessary to meet the respective reduction mandates contained in the Plan(s) are achieved through prohibitory rules created and enforced by the local air quality board/APCD. Compliance with applicable Rules, Regulations, and land use and zoning requirements ensures continued movement towards achieving the SJVAPCD attainment goals. Examples of SJVAPCD rules that may be applicable to the proposed project are described below.

Rule 2280 (Portable Equipment Registration): Certain portable emissions units would be required for well drilling, service or workover rigs, pumps, compressors, generators, and field flares.

Rule 4101(Visible Emissions): The purpose of this rule is to prohibit the emissions of visible air contaminants to the atmosphere.

Rule 4401 (Steam-Enhanced Crude Oil Production Wells): The purpose of this rule is to limit the VOC emissions from steam-enhanced crude oil production wells.

Rule 4402 (Crude Oil Production Sumps): The purpose of this rule is to limit VOC emissions from sumps.

Rule 4623 (Storage of Organic Liquids): The purpose of this rule is to limit VOC emissions from the storage of organic liquids.

Regulation VIII (Fugitive PM₁₀ Prohibitions): The purpose of Regulation VIII is to reduce ambient concentrations of particulate matter (PM₁₀) by requiring actions to prevent, reduce, or mitigate anthropogenic fugitive dust emissions. Regulation VIII rules pertinent to the proposed project include, but are not limited to, the following:

Rule 8021 (Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities): This rule limits fugitive dust emissions (PM₁₀) from construction, demolition, excavation, extraction, and other earthmoving activities. This rule applies to any such activity and other earthmoving activities, including, but not limited to, land clearing, grubbing, scraping, travel on-site, and travel on access roads to and from the site.

Rule 8031 (Bulk Materials): The purpose of this rule is to limit fugitive dust emissions from the outdoor handling, storage, and transport of bulk materials.

Conformity Determination

The classification of any area as a federal nonattainment and/or maintenance area brings an additional requirement for federal agencies. Section 176(c) of the CAA, as amended (42 U.S.C. 7401 et seq.), and regulations under 40 CFR, part 93, subpart B, state that “no department, agency or instrumentality of the federal Government shall engage in, support in any way or provide financial assistance for, license or permit, or approve any activity which does not conform to an applicable implementation plan.” This means that under the CAA 176(c) and 40 CFR, part 93, subpart B (conformity rules), federal agencies must make a determination that proposed actions in federal nonattainment areas conform to the applicable EPA approved implementation plans (if pertinent) before the action is taken.

Climate Change

Global climate change is the term commonly used to refer to any significant change in measures of climate (such as temperature, precipitation, or wind) lasting for an extended period (decades or longer). Emissions of GHGs such as carbon dioxide and its equivalents (methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) are known to contribute to the global phenomenon of climate change. Based on research conducted by the Intergovernmental Panel on Climate Change (IPCC), evidence suggests a strong, consistent, positive linear relationship between GHGs and temperature, changes in precipitation patterns, oceanic warming, oceanic acidification, and reductions in Arctic Sea ice. In addition, species extinction, threats to food security, and threats to human health are predicted. In general, “Climate change will amplify existing risks and create new risks for natural and human systems” (IPCC, 2014).

In the last decade, increased GHGs are believed to have resulted in increases in global temperature and other climate change effects never previously recorded. Data show that the earth’s average surface temperature has increased by about 1.2 to 1.4 degrees Fahrenheit in the last 100 years. The current scientific consensus holds that emissions from human activities have resulted in much higher concentrations of GHGs in the atmosphere than would be expected to occur naturally.

The oil and gas enterprise worldwide are responsible for a large fraction of the total GHGs emitted to the atmosphere. By far the largest factor in these emissions is burning the fuel, not producing it (CCST, 2014). Anthropogenic activity globally results in approximately 49,000 million metric tons of carbon dioxide equivalent (MMT_{CO₂e}) of annual GHG emissions (IPCC, 2014), and the U.S. GHG inventory for 2017 was 6,457 MMT_{CO₂e} (USEPA, 2019), or roughly 12 percent of the global emissions. Oil and gas production across the United States results in about 176 MMT_{CO₂e} in 2017 (USEPA, 2019). This amount is 47 percent greater than in 1990. For comparison, about 17 MMT_{CO₂e} of annual GHG emissions resulted from oil and gas extraction and processing before refining in California in 2017 (ARB, 2019).

Applicable Federal, State, and Local Regulations to Reduce Impacts of Oil and Gas Production on Climate Change

On April 17, 2012, EPA issued Final Air Rules to reduce harmful air pollution from the oil and natural gas industry. In addition, EPA issued final updates to its 2012 VOC performance standard for storage tanks used in crude oil and natural gas production and transmission on August 5, 2013. In addition, on May 12, 2016, EPA issued final rules to reduce emissions of methane, smog-forming volatile organic compounds, and toxic air pollutants from new, reconstructed and modified oil and gas sources; these final rules established updates to the New Source Performance Standards (NSPS) and the Source Determination Rule. The EPA also requires reporting of greenhouse gases from large GHG emissions sources in the United States through the Greenhouse Gas Reporting Program (GHGRP) (EPA, 2020).

The California Legislature passed the California Global Warming Solutions Act of 2006 [Assembly Bill 32 (AB 32)], creating a comprehensive, multi-year program to reduce greenhouse gas emissions in California. AB 32 requires the reporting of GHGs by major sources, applicable to industrial facilities, fuel suppliers, and electricity reporters. In 2005 and 2015, California Governors issued Executive Orders establishing mid-term and long-term GHG reduction targets for California of 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050 (CARB, 2020).

In August 2008, San Joaquin Valley Unified Air Pollution Control District (SJVAPCD) adopted the Climate Change Action Plan (CCAP), which directed the District to develop guidance to assist Lead Agencies, project proponents, permit applicants, and interested parties in assessing and reducing the impacts of project specific GHG emissions on global climate change (SJVAPCD, 2016). SJVAPCD has developed *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA and District Policy Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA*, intended to be applied to CEQA analysis. Although these policies are only available for CEQA analyses, the air district guidance may be generally applied by land-use agencies for reference. BLM concludes that the SJVAPCD requirement to quantify GHG emissions and to implement SJVAPCD Best Performance Standards to reduce GHG emissions would occur at the APD or Sundry stage, to be analyzed in a site-specific NEPA analysis. Therefore, this environmental assessment includes an analysis of GHG emissions for the proposed action.

Biological Resources

The project is proposed on public surfaces that occur nearby and within the Conserved Lands described in the Bakersfield Resource Management Plan, which directs public lands within reserve areas (Red Zones) and habitat corridors (Green Zones) to be managed with disturbance limitations. Reserve areas are managed with a 10% disturbance limit and habitat corridors are managed with a 25% disturbance limit. This proposed project is located within the Green Zone habitat corridor and Red Zones reserve areas, meaning the land is inside of the strategy for the recovery of listed species in the southern San Joaquin Valley. Compensation acres will be required for this project, but replacement acres will not.

The Conserved Lands goal is to maintain suitable amounts of habitat largely undisturbed by development activities. Limiting the amount of habitat (and ground) disturbance allows sufficient habitat to remain intact, keep ecosystem processes functioning properly, and connect viable species populations across the landscape (see Bakersfield Proposed RMP/Final EIS, Appendix B, pp. 771-775).

Federally listed plant species in the southern San Joaquin Valley include Kern mallow (*Eremalche kernensis*), San Joaquin woolly-threads (*Monolopia congdonii*), California jewelflower (*Caulanthus californicus*), Hoover's woolly-star (*Eriastrum hooveri*; delisted in 2003 but covered under the 2017 Oil and Gas Programmatic BO), and Bakersfield cactus (*Opuntia basilaris* var. *treleasei*). Listed animal species include San Joaquin kit fox (*Vulpes macrotis*), blunt-nosed leopard lizard (*Gambelia sila*), giant kangaroo rat (*Dipodomys ingens*), and Tipton kangaroo rat (*Dipodomys nitratoide*). Additionally, this region contains the State listed San Joaquin antelope squirrel (*Ammospermophilus nelsoni*). A field survey to identify the potential for the occurrence of these listed species in the general project area was conducted by Kimberly Fiehler (West Kern Environmental Consulting, LLC) on April 5th, 2022. A project specific onsite inspection was completed by BLM Natural Resource Specialist Fernando Baños on April 26th, 2022.

In general, the proposed project location is occupied by non-native annual grassland and valley saltbush scrub habitat that is moderately developed by oilfield infrastructure. There is no critical habitat for any threatened or endangered species on the project site or in the vicinity. Dominant species include red brome (*Bromus madritensis* ssp. *rubens*), fiddleneck (*Amsinckia menziesii*), and moderately dense allscale (*Atriplex polycarpa*). Kern mallow, San Joaquin woolly-threads, Hoover's woolly-star, California jewelflower, and Bakersfield cactus were not observed in the project area. California jewelflower is not known to naturally exist in Kern County, and Bakersfield cactus is endemic to a limited area of central Kern County in the vicinity of Bakersfield.

The biological surveys found no evidence of giant kangaroo rat (*Dipodomys ingens*) or Tipton kangaroo rat (*Dipodomys nitratoide nitratoide*) in the vicinity of the project sites. There are CNDDDB records that indicate presumed extant populations of giant kangaroo rat less than a mile from the individual project locations. CNDDDB records indicate a presumed extant population of

short-nosed kangaroo rat (*Dipodomys nitratoides brevinasus*) within the project footprint and surrounding area in the Buena Vista Hills. The short-nosed kangaroo rat is listed as a California State Species of Special Concern and a Bureau of Land Management Sensitive Species.

Several San Joaquin antelope squirrels (*Ammospermophilus nelsoni*) were observed during the field surveys. Individuals were observed on the proposed well pad locations, the access roads, and proposed pipeline routes. CNDDDB records indicate a presumed extant population of San Joaquin antelope squirrel (*Ammospermophilus nelsoni*) within the project footprint and surrounding area in the Buena Vista Hills.

No species specific or protocol level Blunt-nosed leopard lizard (*Gambelia sila*) surveys were conducted for the proposed project. However, no blunt-nosed were observed during any previous protocol level surveys and no individuals were observed during the April 5th & April 26th, 2022 field surveys. There are no burrows suitable for use by blunt-nosed leopard lizard within the proposed project site. In addition, there are no CNDDDB records of blunt-nosed leopard lizard within the project footprint, although records indicate a presumed extant population less than a mile northeast of the project locations.

One potential San Joaquin kit fox (*Vulpes macrotis*) dens were observed within the survey areas, however no individuals or their sign were observed. CNDDDB records indicate a presumed extant population of San Joaquin kit fox within the project footprint and surrounding area in the Buena Vista Hills.

Soil Resources

CREH proposes to expand an existing well pad. In general, the soils within the project footprint are undisturbed, except those within and adjacent to the existing access roads. There is one soil map unit present in the project footprint:

- **Bitterwater gravelly sandy loam, 15 to 50 percent slopes (# 117)** – This soil map unit is present on hillslopes. The typical profile of these soils are sandy loam from 0 to 60 inches and weathered bedrock below. These soils are well drained and not designated as prime farmland.

Soil Erosion Factors

Soil Map Unit	K Factor*	Wind Erodibility Group**
Bitterwater gravelly sandy loam, 15 to 50 percent slopes (#117)	0.28 Moderately low	3 Moderately high

*Values of K can range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

**A wind erodibility group consists of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The wind erodibility group provides an indication of how susceptible areas disturbed by

construction activities are to wind erosion. Soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.

Water Quality and Quantity

The proposed project is outside the boundary of any groundwater basin established by the California Department of Water Resources, Groundwater Management Bulletin 118. The target formation, Antelope Shale, does not contain an underground source of drinking water. In addition, there is no record of fresh water in the Buena Vista/McKittrick Oilfield – Main Area according to the California Oil and Gas Fields, Volume 1 – Central California Report 1998. There are no perennial rivers, lakes, or streams in the project area. There are no ephemeral blue-line drainages in the direct project footprint and two (2) located north and northeast of the project footprint.

As stated in the Proposed Action, approximately 6,857 barrels (288,000 gallons) of fresh water would be used for dust abatement and drilling; all water would be obtained from the West Kern Water District and trucked to the project site.

Paleontological Resources

Every geologic unit can be assigned a Potential Fossil Yield Classification (PFYC) class based on the probability and abundance of known vertebrate fossils and scientifically significant invertebrate and plant fossils (BLM 2007). The PFYC scheme ranges from very low (PFYC 1) to very high (PFYC 5) depending on the potential fossil yield (BLM 2016). Unknown fossil potential is assigned to geologic units that do not have a clear PFYC assignment (PFYC U). Typically, paleontological resource compliance is required for earthwork occurring within PFYC classes 3, 4, 5, or U rock units.

This project is located on BLM surface lands and split estate surface lands, with a PFYC U (Unknown aged alluvial deposits) for the BLM surface estate well (4-5H-6D) and PFYC 4 (Tulare Formation) for the split estate well (626-26B). PFYC U formations have an unknown potential for containing vertebrate fossils or scientifically significant invertebrate fossils, while PFYC 4 formations have a high likelihood of containing these fossils. A Paleontological Resource Monitoring and Mitigation Plan has been prepared for all O&G projects within the Buena Vista Hills leases for BLM surface estate projects and has been attached to the Conditions of Approval (COA). CRC, the private surface estate landowner for the split estate well (626-26B), has requested to follow the following Paleontological Compliance procedures:

- All construction personnel will be trained on the importance of paleontological resources and to notify CRC's Health, Safety and Environment Department of the discovery of any archeological, historical, or vertebrate fossil found. All work will stop within 50' of the discovery until a paleontologist reviews the discovery. Construction personnel shall be instructed that unauthorized collection or disturbance of fossils is unlawful.'

Chapter 4. Environmental Impacts

This section describes the environmental impacts of the Proposed Action and No Action Alternatives. This analysis addresses the direct and indirect effects of implementing the proposed project and includes the identified measures and COAs described in Chapter 2.

DIRECT AND INDIRECT IMPACTS

Air Quality

Proposed Action:

The proposed project would result in the emission of criteria pollutants for which the San Joaquin Valley Air Basin has a non-attainment or maintenance designation, including 8-hour ozone, PM₁₀, and PM_{2.5}. These emissions are associated with combustion sources such as diesel drill and completion/workover rig engines, drill pad construction equipment (i.e., dozers, backhoe, grader, etc.), equipment trucks, water trucks, drill rig crew trucks/vehicles, and portable lift equipment. Emissions of criteria pollutants or hazardous air pollutants could also occur through venting or fugitive losses from use of chemicals, or valves and fittings, pumps, compressors, and the well head. In addition, localized impacts to air quality would occur during project implementation as a result of soil disturbance and fugitive dust emissions.

CREH has estimated and the BLM has reviewed project-related emissions for all pollutants of concern in the project area. The following table compares estimated emissions from the proposed action with the EPA-determined *de minimis* emissions levels for all non-attainment and maintenance criteria pollutants in the San Joaquin Valley Air Basin.

Comparison of Project Emissions (Year 1) to Federal *de minimis* Levels for San Joaquin Valley Air Basin

Regulated Pollutant	Federal Designation	<i>de minimis</i> level (tons/year)	Emission Estimate for Project Year 1 (tons)
Ozone (ROG)	Extreme non-attainment	10	0.0767
Ozone (NOx)		10	1.4629
PM10	Maintenance	100	0.0408
PM2.5 (Direct emissions, SO2, NOx, VOC, or ammonia)	Non-attainment	100	0.2935

Therefore, the proposed project is consistent with the SIP and emissions would not exceed the *de minimis* emission levels and are exempt from conformity determination (40 CFR Part 93.153). As a result, no formal conformity analysis or determination is required.

As described in Chapter 3, there are several SJVAPCD rules that would minimize air quality impacts, such as Rules 2280, 4101, 4401, 4402, 8021, and 8031. For example, applicant compliance with Regulation VIII (Rules 8021 and 8031) would minimize particulate emissions by requiring CREH to water unpaved access roads in the project area and to water soils prior to excavation and trenching and during backfilling while compacting. Applicant compliance with Rule 2280 would ensure that ROG/VOC and NO_x emissions from certain portable units, such as the drilling rig, would be evaluated per the SJVAPCD's calculation methodologies, and any increase in emissions would be fully offset during the air permitting process. Implementation of this existing regulatory mechanism would offset the increase in potential emissions related to the proposed project.

As described above, well development and oil production may result in HAP emissions. The exact HAP compounds and the amounts of these compounds emitted depend on the HAP content of the produced oil as well as the management techniques employed. Beginning in the 1990s EPA studied oil exploration and production operations to determine if oil and gas exploration and production HAP emission impacts were significant enough to require regulation under the National Emission Standards for Hazardous Air Pollutants (NESHAP). Oil and gas production NESHAP rules and rule revisions were promulgated in 1999, 2001, 2007, and 2012. To date, only one type of oil exploration and production equipment, glycol dehydrators, has been identified as a significant source of HAP emissions requiring regulation. No glycol dehydrators are proposed as part of the proposed action. BLM reviewed the EPA rulemaking and data on HAP emissions from representative single oil wells and found that in each case HAP emissions were below the threshold requiring controls under the NESHAP. Therefore, the impact of potential HAP emissions from this action are not considered significant.

Based on the emissions estimates reviewed, BLM has determined that direct criteria pollutant emissions from this action would have no significant impact. This determination is confirmed by the finding that SJVAPCD regulations either exempt the action as having emission below applicability thresholds or impose controls sufficient to maintain compliance with Air Quality standards.

The indirect effects to air quality from the Proposed Action alternative would occur downstream from the project site through transportation and refining of the crude oil, and consumption of the end products. Petroleum product use is determined primarily by user demand as opposed to crude oil supply. Based on that fact combined with the large scale of oil and gas production in California (reported by the US Department of Energy to be 197 million barrels per year) and the rate at which existing wells are being abandoned, the BLM has determined the addition of 1 producing oil well would not lead to a significant impact on air quality.

No Action:

There would be no impacts to air quality from the No Action Alternative outside of those already occurring in the San Joaquin Valley Air Basin because the project would not occur. Any impacts on site would remain the same in absence of the proposed project.

Climate Change

Proposed Action:

The proposed action would result in emissions of GHGs that are known to contribute to global climate change. These emissions are associated with combustion sources such as diesel drill and completion/workover rig engines, drill pad construction equipment (i.e., dozers, backhoe, grader, etc.), equipment trucks, water trucks, drill rig crew trucks/vehicles, and portable lift equipment. Emissions of GHGs could also occur through venting or fugitive losses from valves and fittings, pumps, compressors, and the well head.

CREH estimated and the BLM reviewed project related GHG emissions. It was estimated that the project would emit 484.42 metric tons of CO₂e over the life of the project. Put into perspective, the California Air Resources Board estimated a total of 424.10 million metric tons of CO₂e emitted to the atmosphere in 2017 (CARB, 2019), while this project would result in 242.21 metric tons. In mathematical format, this perspective would be:

$$484.42 \text{ metric tons of CO}_2\text{e from project} / 424,100,000 \text{ metric tons of CO}_2\text{e in California in 2017} = 0.000001142$$

Based on this analysis, BLM concludes that direct GHG emissions from the action would not have a significant impact.

Additional GHG emissions would occur as an indirect effect during transport to refiners and refining, and during the end use of produced oil and gas. A rough estimate of possible indirect CO₂ emissions is based on the RFD Scenario, other publicly available information, and assumptions integrated into the Central Coast Field Office Draft RMPA/EIS (BLM, 2017). Possible indirect emissions were estimated by assuming annual production per well of 8,614 barrels of crude oil. The table below estimates 4,109 MTCO₂e of GHG emissions from the production plus transport plus end use of crude oil that could possibly be produced annually by one well. Please note that all references cited in the GHG analysis in the Central Coast Field Office Draft RMPA/EIS (BLM, 2017) are incorporated here by reference.

Estimated end use greenhouse gas emissions for one well

End Use GHG Emissions (Reference)	CO ₂ Emission Factor	Resulting Estimate of End Use Emissions per well	CO ₂ e (MTCO ₂ e per year) for 1 well
Production plus Transport (ARM LCFS and BLM 2017)	26.67 g CO ₂ e/MJ	—	297
End Use (IPCC 2006)	73,300 kg/TJ	3,993 CO ₂ lb/yr	3,993

End Use (EIA 2011)	10.29 kg/gal	3,723 CO ₂ lb/yr	3,723
End Use (USEPA 2016)	74.54 kg/MMBtu	3,722 CO ₂ lb/yr	3,722
Estimated End Use CO ₂ Emissions	(Average of End Use Values above)	3,812 CO₂ lb/yr	3,812
Estimated End Use GHG Emissions (CO ₂ e)	Include CH ₄ and N ₂ O	—	9
Production Phase plus End Use GHG Emissions Total (CO ₂ e)		—	4,109

Table sources, full citations available in the Bakersfield Field Office Final Supplemental EIS (BLM 2019):

ARB Calculation of 2012 Crude Average Carbon Intensity (CI) Values;

IPCC, 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2, Energy, 2006;

USEPA, 2011. Voluntary Reporting of Greenhous Gases Program. Fuel Emission Coefficients Table 1 (CO₂ for Stationary Combustion); USEPA, 2016. Mandatory Greenhouse Gas Reporting Regulation. 40 CFR Part 98, Subpart C, Table C-1. (Default HHV, CO₂ factors).

USEPA, 2019. Mandatory Greenhouse Gas Reporting Regulation. 40 CFR Part 98, Subpart C, Table C-1. (Default HHV, CO₂ factors);

USEPA, 2019. Mandatory Greenhouse Gas Reporting Regulation. 40 CFR Part 98, Subpart C, Table C-2. (Default CH₄ and N₂O Emission factors)

BLM, 2017. Central Coast Field Office Draft Resource Management Plan Amendment and Draft Environmental Impact Statement for Oil and Gas Leasing and Development

With respect to the estimate of end use CO₂ emissions, it should be noted that it is difficult to discern with certainty how transport would occur and what end uses for the fuels extracted from a particular lease might be reasonably foreseeable. For instance, some end uses of fossil fuels extracted from federal leases include combustion of transportation fuels, fuel oils for heating or industrial use, as well as production of asphalt and road oil, and the feedstocks used to make chemicals, plastics, and synthetic materials. The estimate provided above is based on an approximation of these end uses on a national basis using the references cited. While the BLM based these estimates on state-specific transport and national data about typical end use of produced oil and gas, it is important to note that the BLM does not exercise control over the specific end use of the oil and gas produced from any individual federal lease.

The cumulative impacts section of this environmental assessment does not address Climate Change itself because the phenomenon is innately a result of cumulative impacts and is difficult to quantify. An analysis of indirect greenhouse gas emissions serves as a proxy for assessing potential for climate change effects and climate related cumulative impacts.

4,109 MTCO₂e downstream proposed / 424,100,000 MTCO₂e total in California in 2017
= 0.00000969 of the state total GHG emissions

Compared to total GHG emissions in the state, the emissions from the proposed action would not have a significant impact.

No Action:

There would be no additional impacts to the trajectory of global climate change from the No Action alternative; implementing this alternative would result in no net gain of GHGs in the atmosphere because the project would not occur.

Biological Resources

Proposed Action:

Through clearing of vegetation, scraping, and grading project implementation would disturb 1.276 acres of federally listed species potential habitat. Based on field surveys, federally listed plant and animal species and their sign (scat, tracks, etc.) are absent from the project footprint and an 250ft area around the project, therefore direct impacts, such as vehicle collisions, entrapment in open trenches or sumps, and ingestion of oil field fluids, would not be expected.

Considering the loss of potential habitat, the BLM concluded the project “may affect, likely to adversely affect” listed species and formally consulted with the US Fish and Wildlife Service. Consultation was completed on a programmatic basis for oil and gas development in the southern San Joaquin Valley in 2017 (2017 Oil and Gas Programmatic Biological Opinion 08ESMF00-2016-F-0683, “2017 BO”). The 2017 BO includes a thorough discussion of the potential direct and indirect impacts to listed species from project activities, and the discussion is hereby incorporated by reference. The 2017 BO conservation program includes detailed monitoring, reporting, and survey requirements as well as additional measures to avoid and minimize impacts to listed species. Applicable measures, based on habitat and species potential, are included in the proposed project description as Design Features (COAs) and as project specific authorization #133 under the 2017 BO. Implementation of these measures would further reduce the potential for impacts. Furthermore, the measures require off-site conservation of listed species habitat in perpetuity. Specifically, for project authorization #133, **a preliminary estimate of compensation is 4.421 compensation acres (1.155 permanent acres compensated at 3:1 = 3.465 + 0.121 temporary acres compensated at 1.1:1 = 0.133 + 0.823).** For non-listed species, the same mechanisms of potential direct and indirect impact discussed in the 2017 BO would apply. Adherence to the provisions of the Design Features (COAs) and the 2017 BO project specific authorization would result in similar protections for non-listed species.

No Action:

There would be no additional impacts to biological resources from the No Action Alternative. However, the rejection of the APD would not alter the trajectory of listed species populations relative to APD approval because the amount of disturbance is inconsequential on a regional scale. Also, under the No Action alternative, there would be no off-site conservation of listed species habitat in perpetuity, and the impacts to habitat may only be postponed until the next APD is approved for the development of the mineral lease.

Soil Resources**Proposed Action:**

Soil disturbance would occur as a result of the well pad construction and drilling operations. Topsoil and soil horizons would be removed and/or mixed, changing soil-water dynamics and removing nutrients from the project site. In addition, soils would be compacted, which could lead to surface runoff, sediment carry, and erosion concerns. The likelihood of water and wind erosion is moderately low and moderately high throughout the project area, respectively. However, CREH would minimize and mitigate these impacts by conducting interim reclamation utilizing site-specific topsoil on the well pad and cut and fill slopes subsequent to drilling operations. This would include all practicable measures to minimize erosion and stabilize disturbed soils. Also, CREH would conduct final reclamation at the project site when the well is abandoned. In addition, CREH would comply with all applicable federal, state, and local air quality rules and regulations in order to reduce emissions of particulate matter originating from soil disturbance at the project site.

CREH is required to comply with all federal, state, and local laws and regulations, including provisions of EPA regulation 40 CFR 112, Oil Pollution Prevention, and BLM California IM CA-92-124, Oil and Gas Guidelines for Undesirable Events (NTL-3A). Nonetheless, the potential remains for hydrocarbon and chemical leaks or spills to occur on the project site and contaminate soils during project implementation. Given the required regulatory compliance framework, the likelihood of these spills are low and the impacts to soils from spills would not be significant.

No Action:

There would be no impacts to soil from the No Action alternative because the project would not occur. However, implementation of the No Action alternative would not result in conservation of land in perpetuity, as required by the Oil and Gas Programmatic Biological Opinion. Although the intent of the Biological Opinion is to compensate for destruction of habitat, compensation and conservation of land through this Biological Opinion would result in the restriction of development, ultimately resulting in the restriction of soil disturbance as well.

Water Quality and Quantity

Proposed Action:

The proposed action would not result in direct or indirect impacts to underground sources of drinking water or surface waters. No underground sources of drinking water are known to exist in the project area. Surface waters are not expected to be directly or indirectly impacted because there are no blue-line drainages that would be altered on the project site and CREH would implement all applicable Design Features/Conditions of Approval for Surface, which would avoid erosion, sediment carry, and other potential impacts to the adjacent drainages in the general project area. In addition, the project would not result in fresh water quantity impacts because CREH would obtain fresh water from the West Kern Water District, a water management agency that implements water conservation measures and efficient use of urban water supplies under the California Urban Water Management Planning Act (West Kern Water District, 2016).

No Action:

There would be no impacts to water quality and quantity from the No Action alternative because the project would not occur.

Paleontological Resources

Every geologic unit can be assigned a Potential Fossil Yield Classification (PFYC) class based on the probability and abundance of known vertebrate fossils and scientifically significant invertebrate and plant fossils (BLM 2007). The PFYC scheme ranges from very low (PFYC 1) to very high (PFYC 5) depending on the potential fossil yield (BLM 2016). Unknown fossil potential is assigned to geologic units that do not have a clear PFYC assignment (PFYC U). Typically, paleontological resource compliance is required for earthwork occurring within PFYC classes 3, 4, 5, or U rock units.

This project is located on BLM surface lands and split estate surface lands, with a PFYC U (Unknown aged alluvial deposits) for the BLM surface estate well (4-5H-6D) and PFYC 4 (Tulare Formation) for the split estate well (626-26B). PFYC U formations have an unknown potential for containing vertebrate fossils or scientifically significant invertebrate fossils, while PFYC 4 formations have a high likelihood of containing these fossils. A Paleontological Resource Monitoring and Mitigation Plan has been prepared for all O&G projects within the Buena Vista Hills leases for BLM surface estate projects and has been attached to the Conditions of Approval (COA). CRC, the private surface estate landowner for the split estate well (626-26B), has requested to follow the following Paleontological Compliance procedures:

- All construction personnel will be trained on the importance of paleontological resources and to notify CRC's Health, Safety and Environment Department of the discovery of any archeological, historical, or vertebrate fossil found. All work will stop within 50' of the discovery until a paleontologist reviews the discovery. Construction personnel shall be instructed that unauthorized collection or disturbance of fossils is unlawful.'

No Action:

There would be no impacts to paleontological resources under the no action alternative. There would be no ground disturbance and fossils would stay in place, However, leaving fossils buried limits opportunities for scientific investigation, which can be facilitated through the implementation of a Paleontological Mitigation Plan, which includes monitoring and collection. This mitigation is required for all project activities on BLM surface lands for which paleontological mitigation recommendations have not been waived.

Chapter 5. Consultation and Public Involvement**BIOLOGICAL CONSULTATION**

Formal consultation with the U.S. Fish and Wildlife Service was initiated in 2016. The Fish and Wildlife Service issued their “No jeopardy” biological opinion on December 22, 2017 (Programmatic Biological Opinion on Oil and Gas Activities on Bureau of Land Management Lands in the San Joaquin Valley, 08ESMF00-2016-F-0683).

PERSONS, GROUPS AND AGENCIES CONSULTED

Kevin Coodey, Assistant Field Manager for Minerals, BLM
Daniel Padilla, Regulatory Advisor, CREH
Joseph Parra, Regulatory Advisor, CREH

SUMMARY OF PUBLIC PARTICIPATION

The BLM posted notification that it was considering these NOSs/APD's on the E-Planning public website on May 20th, 2022. This notice initiated the 30-day scoping period. The BLM also posted copies of the Applications for Permit to Drill (APD) in the front lobby of the Bakersfield Field Office for that 30-day period. Comments were received from the Center of Biological Diversity, which have been addressed in this EA.

LIST OF PREPARERS

Zachary Day, Archaeologist - Cultural and Paleontological Resources
Fernando Baños, Natural Resource Specialist

Chapter 6. References

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**United States Department of the Interior
Bureau of Land Management
Bakersfield Field Office**

Finding of No Significant Impact (FONSI)

**California Resources Elk Hills, LLC (CREH)
2 APDs in Buena Vista Hills
DOI-BLM-CA-C060-2022-0089-EA
Programmatic Project #133**

Background

California Resources Elk Hills, LLC (CREH) has submitted one Application for Permit to Drill (APD) to drill wells: 4-5H-6D & 626H-26B on federal mineral leases CAS 019343 & CAS 019577 in Section 6, T. 32S., R. 24E., & Section 26, T. 31S., R. 23E., MDB&M. The proposed project would occur on federal lands containing BLM administered subsurface minerals within the Buena Vista Oilfield, Kern County. Project implementation would include the expansion and grading of two existing well pads, installation of associated power poles and pipelines, and the drilling of two new wells.

The purpose of the proposed action is to respond to the APDs submitted by California Resources Elk Hills, LLC to drill two new oil wells and stage associated facilities required to increase production on federal mineral leases CAS 019343 & CAS 019577.

The need for the action is established by BLM's responsibility under the Mineral Leasing Act of 1920 as amended, the Mining and Minerals Policy Act of 1970, the Federal Land Policy and Management Act of 1976, the National Materials and Minerals Policy, Research and Development Act of 1980 and the Federal Onshore Oil and Gas Leasing Reform Act of 1987 to allow reasonable access to develop a federal oil and gas lease.

This Environmental Assessment (EA) has been prepared in compliance with the National Environmental Policy Act (NEPA) and other relevant federal and state laws and regulations. The purpose of this document is to disclose and analyze the environmental consequences that are anticipated from the expansion and grading of two existing well pads, installation of associated power poles and pipelines, and the drilling of two new wells on existing federal mineral leases (CAS 019343 & CAS 019577) in the Buena Vista Oilfield. BLM will decide whether to approve, approve with conditions, or deny the two APDs submitted by CREH.

Finding of No Significant Impact

Based upon a review of the EA and the supporting documents, I find that the project is not a major federal action and will not significantly affect the quality of the human environment. No environmental effects meet the definition of significance based on the potentially affected environment and degree of the effects as defined in 40 CFR 1501.3(b) and furthermore, no environmental effects exceed those effects described in the Bakersfield Resource Management

Plan, approved in December 2014. Therefore, an environmental impact statement or a supplement to the existing environmental impact statement is not necessary and will not be prepared. This finding is based on consideration of the potentially affected environment and degree of effects of the project as described below:

Potentially Affected Environment

“In considering the potentially affected environment, agencies should consider, as appropriate to the specific action, the affected area (national, regional, or local) and its resources such as listed species and designated critical habitat under the Endangered Species Act. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend only upon the effects in the local area.” 40 CFR 1501.3 (b)(1).

The proposed project is located on BLM administered land in Section 6 of T32S, R24E, MDB&M. The proposed activity is a site-specific action with minor localized effects on air quality and soils. The EA details the effects of the action alternatives. None of the effects identified are considered to be significant and none exceed the effects described in the Resource Management Plan.

Degree of Effects

I have considered the potential degree/severity of the impacts anticipated from the approval of the proposed action: the expansion and grading of two existing well pads, installation of associated power poles and pipelines, and the drilling of two new wells on existing federal mineral leases (CAS0019343 & CAS019577) in the Buena Vista Oilfield. The following discussion is organized around 40 CFR 1501.3 (b)(2).

1. **Short- and long-term effects of the selected alternative.** Short-term effects include noise, air pollutant emissions, increased human activity, and the presence of heavy equipment during construction activities. Long-term effects include production of fluid mineral resources which, when burned, contribute to greenhouse gas quantities.
2. **Impacts may be both beneficial and adverse.** The selected alternative would result in emission of air pollutants, contributions to greenhouse gases, soil disturbance, and destruction of habitat for federally listed species. Contributions of air pollutants and greenhouse gas emissions are indiscernible from ambient conditions at the local, state, and national levels. Animals may alter their movement patterns to avoid the project vicinity during the days of construction, but this impact would be expected to dissipate once construction concludes. None of these impacts would be significant at the local scale or cumulatively because of the small scale of the project and Design Features/Conditions of Approval (COAs) that would reduce impacts to immeasurable levels. Air emissions would be below *de minimis* levels; soils would be preserved during construction and would be restored to the extent possible once the proposed action concludes and listed species habitat destruction would be minimized and compensated for according to the terms of the applicable biological opinion. Beneficial impacts include the development of the fluid mineral lease including resulting royalties and employment opportunities for area residents. None of the environmental effects discussed in detail in the EA are considered significant,

nor do the effects exceed those described in the Bakersfield Proposed Resource Management Plan and Final Environmental Impact Statement.

3. **The degree to which the selected alternative will affect public health or safety.** The proposed project is comparable to other similar activities and projects already undertaken on BLM-administered lands within the Bakersfield Field Office and nationwide with no unusual health or safety concerns. All operators are subject to the standards outlined in the California Occupation Safety and Health Plan, and the State must conduct inspections to enforce its standards and must operate occupational safety and health training and education programs. Also, operators must comply with federal safety regulations outlined in 43 CFR 3160 and the Onshore Oil and Gas Orders. Implementation of measures to meet these standards and regulations would minimize risks to public health and safety; therefore, any impacts to public health and safety are not considered significant.
4. **Whether the selected alternative would violate a federal, state, local, or tribal law, protecting the environment.** The alternatives do not violate any known federal, state, local or tribal law or requirement imposed for the protection of the environment. Coordination and consultation with state, local and tribal interests was conducted as described in the EA. In addition, the project is consistent with applicable land management plans, policies, and programs. The proposed action is fully consistent with the 2014 Bakersfield Resource Management Plan. The EA is in full compliance with the National Environmental Policy Act of 1969 and is consistent with the Federal Land Policy and Management Act of 1976, as amended.

Prepared by: **FERNANDO BANOS**
Digitally signed by FERNANDO BANOS
Date: 2022.06.30 15:10:12 -07'00'
Project Lead

Approved by: **NORA DEDIOS**
Digitally signed by NORA DEDIOS
Date: 2022.06.30 15:14:07 -07'00'
Assistant Field Manager- Minerals

**United States Department of the Interior
Bureau of Land Management
Bakersfield Field Office**

Decision Record

**California Resources Elk Hills, LLC (CREH)
2 APDs in Buena Vista Hills
DOI-BLM-CA-C060-2022-0089-EA
Programmatic Project #133**

Introduction

California Resources Elk Hills, LLC (CREH) has submitted one Application for Permit to Drill (APD) to drill wells: 4-5H-6D & 626H-26B on federal mineral leases CAS 019343 & CAS 019577 in Section 6, T. 32S., R. 24E., & Section 26, T. 31S., R. 23E., MDB&M. The proposed project would occur on federal lands containing BLM administered subsurface minerals within the Buena Vista Oilfield, Kern County. Project implementation would include the expansion and grading of two existing well pads, installation of associated power poles and pipelines, and the drilling of two new wells.

The purpose of the proposed action is to respond to the APDs submitted by California Resources Elk Hills, LLC to drill two new oil wells and stage associated facilities required to increase production on federal mineral leases CAS 019343 & CA S019577.

The need for the action is established by BLM's responsibility under the Mineral Leasing Act of 1920 as amended, the Mining and Minerals Policy Act of 1970, the Federal Land Policy and Management Act of 1976, the National Materials and Minerals Policy, Research and Development Act of 1980 and the Federal Onshore Oil and Gas Leasing Reform Act of 1987 to allow reasonable access to develop a federal oil and gas lease.

Decision

I have reviewed the recommendations on the proposed action addressed in this environmental assessment. I find this action to be in conformance with applicable land use plans, that it effectively serves the public, and that it will not cause unnecessary or undue degradation. It is therefore my decision to approve the proposed action which is subject to the Design Features/Conditions of Approval identified for the proposed action in the Environmental Assessment.

Alternatives Considered but not Selected

A No Action Alternative that would deny the application was considered, but not selected.

Decision Rationale

The decision to approve the two APDs for wells 4-5H-6D & 626H-26B best meets the purpose and need of BLM by authorizing CREH to drill two wells on the federal mineral estate, pursuant to the *Federal Land Policy and Management Act of 1976*, the *Mineral Leasing Act of 1920*, as amended, and 43 CFR 3160. This decision also meets the Bakersfield RMP's decision and objective:

[MM-D-1.1.5] "Identify approximately 1,011,470 acres as open to fluid mineral leasing, subject to major constraints (both CSU- Protected Species and CSU- Sensitive Species)..."

[MM-O-1] "Facilitate reasonable, economical, and environmentally sound exploration and development of leasable minerals while minimizing impacts to other resources."

The proposed action is located on an existing lease that was issued in conformance with the above land use plan decisions. Issuance of the lease was not judicially challenged, and the lease is considered a valid existing right with rights of development.

Consultation and Coordination

Public Involvement

BLM conducts external scoping on routine NOSs and APDs by posting notification that it is considering the NOS(s)/APD(s) on the E-Planning public website, which initiates the 30-day notification period. In addition, APDs are published nationally at the time of acceptance at <https://reports.blm.gov>. The following APDs were posted on May 20, 2022, on the E-Planning website to solicit public comments. Comments were received from the Center of Biological Diversity and have been address in the EA.

Biological Consultation

Formal consultation with the U.S. Fish and Wildlife Service was initiated in 2016. The Fish and Wildlife Service issued their “No jeopardy” biological opinion on December 22, 2017 (Programmatic Biological Opinion on Oil and Gas Activities on Bureau of Land Management Lands in the San Joaquin Valley, 08ESMF00-2016-F-0683). The 2017 Oil and Gas Programmatic Biological Opinion provides take coverage for authorization of individual projects occurring on surface and subsurface lands administered by the BLM in the San Joaquin Valley that disturb less than 10 acres of habitat or that encompass linear actions less than 10 miles long. This project occurs in Kern County and disturbs 1.276 acres, requiring a total of 4.421 acres of compensation, thus satisfying both requirements for coverage under the 2017 Oil and Gas Programmatic Biological Opinion.

Plan Consistency

Based on information in the EA, the project record, and recommendations from BLM specialists, I conclude that this decision is consistent with the Bakersfield RMP; the Endangered Species Act; the National Historic Preservation Act; the Paleontological Resources Preservation Act; other cultural resource management laws and regulations; Executive Order 12898 regarding Environmental Justice; and Executive Order 13212 regarding potential adverse impacts to energy development, production, supply and/or distribution.

Administrative Remedies

Administrative remedies may be available to those who believe they will be adversely affected by this decision. Appeals may be made to the Office of Hearings and Appeals, Office of the Secretary, U.S. Department of Interior, Board of Land Appeals (Board) in strict compliance with the regulations in 43 CFR Part 4. Notices of appeal must be filed in this office within 30 days after publication of this decision. If a notice of appeal does not include a statement of reasons, such statement must be filed with this office and the Board within 30 days after the notice of appeal is filed. The notice of appeal and any statement of reasons, written arguments, or briefs must also be served upon the Regional Solicitor:

U.S. Department of the Interior
Office of the Solicitor, Pacific Southwest Region
2800 Cottage Way, Room E-1712
Sacramento, CA 95825-1890

The effective date of this decision (and the date initiating the appeal period) will be the date of approval by the authorized officer.

NORA DEDIOS Digitally signed by NORA DEDIOS
Date: 2022.06.30 15:14:54 -07'00'

Assistant Field Manager, Minerals

**United States Department of the Interior
Bureau of Land Management
Bakersfield Field Office**

Conditions of Approval (COAs) for Surface

**California Resources Elk Hills, LLC (CREH)
2 APDs in Buena Vista Hills
DOI-BLM-CA-C060-2022-0089-EA
Programmatic Project #133**

Design Features/Additional Conditions of Approval (COAs) for Surface

The following Design Features and conditions of approval are part of the proposed action:

CREH shall comply with all applicable Federal, Tribal, State, and local laws during project implementation.

Biological Resources

This project would be covered as project #133 under the 2017 Oil and Gas Programmatic Biological Opinion (08ESMF00-2016-F-0683). The 2017 Oil and Gas Programmatic Biological Opinion provides take coverage for authorization of individual projects occurring on surface and subsurface lands administered by the BLM in Kings and Kern Counties that disturb less than 10 acres of habitat or that encompass linear actions less than 10 miles long. This project occurs in Kern County and disturbs 1.276 acres of habitat, thus satisfying both requirements for coverage under the 2017 Oil and Gas Programmatic Biological Opinion. Compliance with the Project Specific Provisions (**Attachment 1**) of this Opinion is required. **A preliminary estimate of compensation is 4.421 compensation acres (1.155 permanent acres compensated at 3:1 = 3.465 + 0.121 temporary acres compensated at 1.1:1 = 0.133 + 0.823).**

In addition, CREH shall comply with all of the “Avoidance & Mitigation Actions” recommended by consulting Biologist by Kimberly Fiehler (West Kern Environmental Consulting, LLC) in her April 20th, 2022, Sensitive Species Review Form:

1. A biological monitor will be present during initial ground disturbance and will be on-call and notified (661) 448-3131 if listed species are observed in the project area subsequent to initial ground disturbance.
2. A Threatened and Endangered Species training session will be given to construction personnel prior to project implementation.
3. A pre-activity survey shall be conducted on the project site within 14-days of project construction. Should a potential kit fox den be observed during the 14-day pre-construction survey, CRC will implement monitoring measures based on guidelines in the USFWS Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance (USFWS 2011).
4. Project site boundaries shall be clearly delineated by stakes, flagging and/or rope to minimize inadvertent degradation or loss of adjacent habitat during well pad and pipeline installation activities.

5. All construction equipment, staging areas, material and personnel shall be restricted to previously disturbed areas (roads, well pads, and other non-habitat areas).
6. All construction pipes, culverts, or similar structures stored at the construction site overnight having a diameter of two (2) inches or greater shall be inspected thoroughly for wildlife species before being buried, capped, or otherwise used or moved in any way. Pipes laid in trenches overnight shall be capped. If during construction a wildlife species is discovered inside a pipe, that section of pipe shall not be moved or, if necessary, moved only once to remove it from the path of construction activity, until the wildlife species has escaped.
7. A speed limit of 10 mph (MAX) will be enforced to avoid incidental take of wildlife along roadways.
8. All excavated steep-walled holes or trenches in excess of three feet in depth left open for more than one (1) workday shall be provided with one or more escape ramps constructed of earth fill or other material to prevent entrapment of endangered species or other animals. Ramps shall be located at no greater than 1,000-foot intervals (for pipelines etc.) and at not more than 45-degree angles. Trenches shall be inspected for entrapped wildlife each morning prior to onset of construction activities and immediately prior to the end of each working day. Before such holes or trenches are filled, they shall be inspected thoroughly for entrapped animals. Any animals discovered shall be allowed to escape voluntarily without harassment before construction activities resume or removed from the trench or hole by a qualified biologist and allowed to escape unimpeded.
9. All food related trash such as wrappers, cans, bottles, and food scraps shall be disposed of into closed containers and be removed daily from the site.
10. Feeding of wildlife is strictly prohibited.
11. CREH staff and/or its contractors should designate a specific individual as a contact representative between CRC and all applicable federal, state, and local agencies to oversee compliance with these avoidance mitigation measures.
12. Firearms are prohibited on site.
13. Pets are prohibited on site.
14. Follow BLM General Guidelines for Conserving Habitat and Minimizing Project Impacts.

Cultural Resources

In the event of inadvertent discovery of cultural resources during project implementation, personnel responsible for the project shall immediately notify the BLM Bakersfield Field Office Cultural Resource Staff and Field Manager (661-391-6000). All work at the site of discovery, and in any other locations where damage to the discovery could occur, shall cease until written approval is received from the BLM.

If human remains are inadvertently discovered on BLM surface land, all activity will immediately cease surrounding the unanticipated discovery. The holder will ensure that the discovery is secured and protected and will immediately notify the BLM Field Manager (661-391-6000). The BLM will adhere to current regulations regarding the treatment of human remains (Native American Graves Protection and Repatriation Act, 43 CFR 10). Access and use of the area can proceed with written approval from the Field Manager once the appropriate level of review has been determined and completed.

Paleontological Resources

This project is located on BLM surface lands and split estate surface lands, with a PFYC U (Unknown aged alluvial deposits) for the BLM surface estate well (4-5H-6D) and PFYC 4 (Tulare Formation) for the split estate well (626-26B). PFYC U formations have an unknown potential for containing vertebrate fossils or scientifically significant invertebrate fossils, while PFYC 4 formations have a high likelihood of containing these fossils. CRC, the private surface estate landowner for the split estate well (Well 626-26B), has requested to follow the following Paleontological Compliance procedures:

- All construction personnel will be trained on the importance of paleontological resources and to notify CRC's Health, Safety and Environment Department of the discovery of any archeological, historical, or vertebrate fossil found. All work will stop within 50' of the discovery until a paleontologist reviews the discovery. Construction personnel shall be instructed that unauthorized collection or disturbance of fossils is unlawful.

The BLM surface estate well (Well 4-5H-6D) will follow the Paleontological Resource Monitoring and Mitigation Plan attached to the end of these Conditions of Approval.

Construction and Interim Reclamation

Reclamation activities will be initiated in the fall, starting no earlier than October to maximize use of the wet season. All reclamation areas will be monitored for a minimum of five years, or until the BLM determines the locations have been successfully reclaimed. Reclamation progress will be reviewed annually in the fall season to determine if additional re-seeding activities are required or if fencing and signage need to be repaired.

All permanent above-ground structures (e.g., production equipment, etc.) not subject to safety requirements shall be painted to blend with the natural color of the landscape. The paint used will be a color which simulates "Standard Environmental Colors." The colors selected for the project location are Covert Green or Carlsbad Canyon.

At the beginning of construction, topsoil (approximately the top four inches of soil) shall be removed from the project area and stockpiled on an existing pad or previously disturbed surface in close proximity to the project site. Subsequent to well completion, topsoil will be re-applied to the cut and fill slopes, as well as the sump. "Well completion" is a technical term used to describe the final phase of well drilling; "well completion" is not synonymous with the final phase of project implementation. Prior to applying topsoil to the sump, it will be cleaned, ripped to a minimum depth of 12 inches, and re-contoured to match the surrounding topography. Remaining topsoil will be stockpiled on an existing well pad or other previously disturbed surface and retained for future reclamation. Topsoil will be retained for no more than one year.

All practicable measures will be taken to minimize erosion and stabilize disturbed soils. The following types of interim stabilization or similar methods may be used if necessary: jute netting, hydro-mulch, straw wattles, or crimped straw mulch.

Management of Noxious Weeds

A site-specific weed control Environmental Assessment (EA) and a Pesticide Use Permit (PUP) must be completed before any use of pesticides on BLM lands. This can be a lengthy process and requires specific information, public notification, and review by the BLM State Office. Currently, the applicant does not have these approvals in place. Therefore, no herbicide treatment is authorized at this time.

Final Reclamation

Disturbed lands shall be re-contoured to conform with existing undisturbed topography unless the BLM determines that re-contouring would result in negative impacts to special status species. No depressions shall be left that trap water or form ponds. All portions of final reclamation may be subject to additional cultural resources and paleontological inventory and may require a permit. The reclaimed landscape shall have characteristics that approximate the visual quality of the adjacent area with regard to location, scale, shape, color and orientation of major landscape features and meet the needs of the planned post disturbance land use.

Final reclamation shall specifically achieve the following:

1. The reclaimed area shall be stable and exhibit none of the following characteristics:
 - a. Large rills or gullies (greater than 6 inches deep).
 - b. Perceptible soil movement or head cutting in drainages.
 - c. Slope instability on, or adjacent to, the reclaimed area in question.
2. The soil surface must be stable and have adequate surface roughness to reduce runoff and capture rainfall and snow melt. Additional short-term measures, such as the application of mulch, shall be used to reduce surface soil movement.
3. Vegetation production and species diversity (including shrubs) shall approximate the surrounding undisturbed area (50-150% of the adjacent species composition and cover). The vegetation shall stabilize the site and support the planned post disturbance land use, provide for natural plant community succession and development, and be capable of renewing itself. This shall be demonstrated by:
 - a. Successful onsite establishment of species included in the planting mixture or other desirable species.
 - b. Evidence of vegetation reproduction, either spreading by rhizomatous species or seed production.
4. Habitat Restoration
 - a. Restoration will be required on unused portions, including abandoned, unused, or unnecessary roads, of the project area or oil and gas lease when deemed necessary by the BLM to maintain or improve habitat values. Restoration will be required when reserve area (Red Zone) and habitat corridor (Green Zone) limits are exceeded and when a project or lease is abandoned. Restoration activities will be supervised by an onsite monitoring biologist.
 - b. The following are examples of actions that may be required as part of restoration:
 - i. All trash will be removed from the site and disposed of properly.
 - ii. All cement, asphalt, and oil-contaminated soils will be removed from the site and disposed of properly.
 - iii. All pipelines and other oilfield infrastructure no longer in use will be removed from the site and disposed of properly.
 - iv. Topographic contours will be restored to the maximum extent possible.
 - v. Non-compacted soils or areas previously deep ripped will be disked to a depth of approximately 8 inches.

- vi. Compacted sites will be deep ripped to a depth of 12 to 18 inches.
- vii. Slopes greater than 30 per cent will be treated by erosion control methods such as disking along the contour, imprinting, mulching, or installing wattles.
- viii. Sites will be seeded using methods such as drill or broadcast seeding with a site-appropriate seed mix, approved by the BLM Botanist. Exact seeding mixes and rates will depend on the site characteristics, the species chosen, and the current availability of native seed. Seed mixes will include dominant shrubs and native grasses and herbs compatible with the adjacent plant community. The best time for seeding is generally late summer to early fall prior to the onset of the rainy season.
- ix. Sites will be considered restored when it can be documented that they support functional, native habitat. Evidence of attainment of this goal will be provided by the project applicant. Restoration in drainages, streambeds, and similar habitats where water is a substantial component may require conformance with conditions of a CDFW Streambed Alteration Agreement or other state or local permit. Demonstration of restoration may include documentation of:
 - 1. Visual continuity or similarity with adjacent native, undisturbed habitat or a designated reference site.
 - 2. Topography that follows natural contours and allows for the natural flow of water across the landscape.
 - 3. Indiscernible boundary lines or areas between the disturbed and undisturbed areas.
 - 4. Presence of habitat that supports threatened and endangered species.
 - 5. Vegetation community composition within the normal or desired range. Ratios of native and non-native plants within normal or desired parameters. Presence and abundance of reproducing plants. Presence and abundance of biological soil crusts.
 - 6. Evidence or presence of animals or animal sign on the site. Presence and abundance of desired species. Evidence, presence, and abundance of reproducing species.
 - 7. Evidence of species diversity for both plants and animals.
 - 8. Evidence of soil stability (minimal erosion).
 - 9. Absence of signs of vehicle or other trespass. Absence of trash and contaminated soils.

Paleontological Resource Monitoring and Mitigation Plan (For Well 4-5H-6D):

The following sections provide a detailed paleontological mitigation plan (PMP) recommended for future development on BLM managed lands within the Buena Vista Hills Master Development Plan (MDP) (for private surface split estate or fee lands, paleontological resource compliance is up to the discretion of the surface owner). This mitigation program has been divided into sections outlining steps to be taken prior to the commencement of construction (e.g., contracting a qualified Project Paleontologist, attendance of Project Paleontologist at pre-construction meetings, paleontological resource training provided for earth excavation personnel), during construction (paleontological monitoring of excavations into Pleistocene older alluvial deposits or the Tulare Formation, salvage of discovered fossils), and post-construction (preparation and curation of any salvaged fossils, completion of final paleontological mitigation report). All steps taken in the mitigation program are in accordance with industry standards (e.g., SVP, 2010; Murphey et al., 2014). Adopting the recommendations outlined in this PMP will reduce impacts to paleontological resources from ground disturbance during construction to less than significant levels.

A1.0 PRECONSTRUCTION

Prior to commencement of construction activities, some or all of the following actions will be necessary.

A1.1 RETAINMENT OF QUALIFIED PROJECT PALEONTOLOGIST

Prior to the start of construction, a qualified Project Paleontologist (as defined below) shall be retained and approved by the lead agency to monitor ground disturbance activities. The Project Paleontologist will oversee the Paleontological Mitigation Program, including serving as supervisor to any retained qualified paleontological monitors (as defined below).

A1.1.1 QUALIFICATIONS

The qualified Project Paleontologist will have a Master's Degree or Ph.D. in paleontology, and will have proven knowledge of local paleontology and geology and professional experience with paleontological procedures and techniques. In turn, the qualified paleontological monitor(s) will have a BA or BS in Geology or Paleontology and a minimum of 1 year of monitoring experience in local sedimentary rocks. Other experience may be substituted on approval from the BLM and/or County of Kern.

A1.2 DESIGNATION OF REPOSITORY

For paleontological resources recovered from BLM managed lands, a professional repository approved by the BLM should be contracted prior the start of construction, to curate and store any discovered fossils. Such an institution should be a recognized paleontological specimen repository with a permanent curator, such as an AAM-accredited museum or university (e.g., Natural History Museum of Los Angeles County, San Diego Natural History Museum, or University of California Museum of Paleontology). The repository shall be capable of storing fossils in a facility with adequate security against theft, loss, damage, fire, pests, and adverse climate conditions.

The designated repository will understand that though they will assume the professional and financial responsibilities associated with curation and storage in perpetuity, ownership of the

fossils will be retained by the BLM. A curation agreement outlining this relationship, as well as funds required for initial curation and storage needs, shall be submitted to the Bakersfield Field Office for approval prior to beginning any work. Reasonable costs may include necessary curatorial supplies (e.g., archival specimen trays, glass vials, foam), as well as a one-time fee for initial specimen storage, which is generally calculated based on the actual or prorated purchase price of steel drawers and cabinets, and a prorated cubic foot volume charge for the collection room.

For paleontological resources recovered from private surface lands for projects conducted on split-estate, fee land, or connected action projects, the fossils are the property of the surface land owner. In such instances, the surface land owner is strongly encouraged to donate fossils to a professional repository.

A1.3 ATTENDANCE AT PRE-CONSTRUCTION MEETING

The Project Paleontologist shall attend the pre-construction meeting to consult with the grading and excavation contractors concerning excavation schedules, paleontological field techniques, and safety issues.

A1.4 WORKER ENVIRONMENTAL AWARENESS PROGRAM (WEAP)

Prior to the start of construction, the Project Paleontologist shall present a Worker's Environmental Awareness training program on paleontological resources to insure that all construction personnel understand paleontological monitoring requirements, the roles and responsibilities of paleontological monitors, and the appropriate action to be taken in the event of a discovery of paleontological resources. The penalties associated with the unauthorized collection of or intentional disturbance of any paleontological resources, as well as the penalties for noncompliance with paleontological mitigation requirements shall be clearly communicated. Training shall include a definition of paleontological resources and an overview of potential resources that could be encountered during ground disturbing activities, which will help to facilitate worker recognition, avoidance, and immediate notification to the Project Paleontologist, or paleontological monitor. All construction personnel will be required to attend a WEAP workshop.

A1.5 SUBMISSION OF LIST OF MONITORS AND PALEONTOLOGICAL MONITORING EXHIBIT

Prior to the start of earthwork, a Paleontological Monitoring Exhibit should be submitted to the BLM Bakersfield Field Office by the contracted Project Paleontologist. The monitoring exhibit shall highlight the areas to be monitored on available construction/grading plans. The names of any qualified paleontological monitors that may work on the Project Area shall also be submitted to the Bakersfield Field Office for approval prior to beginning any earthwork.

A1.6 RESEARCH DESIGN

There are specific research themes associated with the sedimentary rock units present within a given project, which will direct the types of data collection made during paleontological mitigation. These research themes would be applied during the implementation of a research design/discovery phase, as appropriate. Research themes related to Pleistocene-aged older alluvial deposits and the Tulare Formation include:

- Pleistocene land mammal diversity including "Ice-Age" megafauna
- Pleistocene non-marine paleoenvironments of the southern San Joaquin Valley

- Distribution and stratigraphy of marine and nonmarine deposits of the Tulare Formation
- Paleoecological structure of Pleistocene land mammal assemblages
- Pleistocene land mammal and aquatic vertebrate evolution and systematics
- Preservation of fossils in older alluvial deposits

A2.0 DURING CONSTRUCTION

Commencement of construction related excavation activities marks the time when potential impacts to paleontological resources will begin. To mitigate these potential impacts, some or all of the following actions are required:

A2.1 EXCAVATION MONITORING: DUTIES AND AREAS TO BE MONITORED

A qualified paleontological monitor(s) working under the direction of the Project Paleontologist shall be present full-time during all relevant ground disturbance activities (i.e., grading for new well pads and excavation of well sumps) associated with the well pad preparation phase of construction. Paleontological monitoring of well site drilling is not required.

It is the Construction Manager's responsibility to keep the Project Paleontologist and paleontological monitor(s) up-to-date with current earthwork plans and any construction or scheduling changes. The monitor(s) will coordinate with Construction Management to determine the timing for monitoring in the identified areas of concern. It will be the paleontological monitor's responsibility to maintain communication and coordination with the construction team. Paleontological monitoring may be reduced (e.g., weekly spot-checking), at the discretion of the Project Paleontologist, based on the conditions in the field (e.g., only weathered deposits are impacted by construction).

A paleontological monitor will observe and inspect any temporarily exposed outcrops (e.g., graded pad surfaces, cutslopes, sump sidewalls) for paleontological remains. Spoils produced from excavation activities (e.g., trenching, augering) may also be inspected. Ideally, inspection involves the examination of every newly exposed surface, but operationally this is often impossible. The pace and quantity of equipment in the cut may determine how often and where paleontological monitors can inspect. When active excavations are too dangerous to enter because of a narrow cut, short haul, and/or heavy equipment traffic, monitoring may be conducted from an elevated vantage point.

It is important to emphasize that paleontological monitors should avoid interference with, or delay of, construction operations.

A2.1.1 DATA RECOVERY (STRATIGRAPHY)

Recording of stratigraphic data will be an on-going aspect of excavation monitoring to provide context for any eventual fossil discoveries, and to gain a greater understanding of the stratigraphy and geology of Kern County and the southern San Joaquin Valley. Outcrops exposed in active cuts and finished slopes should be examined and observed geologic features recorded on grading plans and field notes. The goal of this work is to delimit the nature of fossiliferous sedimentary rock units in the Project Area, determine their areal distribution and depositional contacts, and record any evidence of structural deformation that may affect determination of the stratigraphic position

of recovered fossils. Standard geologic and stratigraphic data collected include lithologic descriptions (color, sorting, texture, structures, and grain size), stratigraphic relationships (bedding type, thickness, and contacts), and topographic position. Measurement of stratigraphic sections will be routinely done and areas containing exposures of fossiliferous sedimentary deposits will be studied in detail and fossil localities recorded on measured stratigraphic sections.

A2.1.2 SAFETY PROCEDURES

Safety of paleontological field personnel is of paramount concern during the construction phase. Safety procedures to be followed by field personnel will include wearing appropriate clothing (e.g., high-visibility safety vests, hard hats, steel-toed boots), carrying large handheld orange flags, securing equipment operators' attention before entering an active cut, notifying grading personnel before beginning a salvage excavation, marking fossil discovery sites with surveyor's flagging, and using caution while driving on haul roads. Attendance at the preconstruction meeting (section A1.3) and daily or weekly tailgate meetings are important for discussing mutual safety issues between paleontological field personnel and construction personnel.

A2.2 PROCEDURES FOR PALEONTOLOGICAL DISCOVERIES

The goal of paleontological monitoring is to observe excavation activities and to be onsite in the event that fossils are unearthed by excavation activities. When fossils are discovered the procedures outlined below will be followed. Recovery methods, as well as time needed for fossil recovery, may vary to some degree depending on the types of fossils discovered (e.g., macrofossils, microvertebrate fossils, or plant fossils) and the nature of the enclosing sedimentary deposits.

A2.2.1 DISCOVERY PROCESS AND WORK STOPPAGE

In the event of a fossil discovery, the qualified paleontological monitor may immediately initiate recovery or choose to temporarily stop construction or grading work at the discovery location to consult with the Project Paleontologist. When work is stopped, the Project Paleontologist will notify the project superintendent and appropriate agency representatives (e.g., BLM and Kern County staff members). The monitor, under direction of the Project Paleontologist, will divert, direct, or temporarily halt ground disturbing activities in the area of discovery to allow for preliminary evaluation of potentially significant paleontological resources and to determine if additional measures (i.e., collection and curation) are required.

A2.2.2 DETERMINATION OF SIGNIFICANCE

The significance of the discovered paleontological resources will be determined by the Project Paleontologist. For significant paleontological resources, a data recovery program will be initiated that will follow the general steps outlined below with some refinements based on the type and nature of the specific discovery.

The data recovery program will largely be driven by the research themes (see Section A1.6) and will incorporate appropriate field methods for data collection to answer specific questions, as well as develop plans for the preparation, curation, and storage of recovered fossils, and data collection and post-collection phases of fossil recovery.

A2.2.3 MACROFOSSIL RECOVERY

Many fossil specimens discovered during excavation monitoring are readily visible to the naked eye and large enough to be easily recognized and removed. Upon discovery of such macrofossils, the qualified paleontological monitor will temporarily flag the discovery site for avoidance and

evaluation as described above. Actual recovery of unearthed macrofossils can involve several techniques including “pluck-and-run,” hand quarrying, plaster-jacketing, and/or large-scale quarrying. The “pluck-and-run” technique will be used when equipment activity in the vicinity of the discovery area is heavy and immediate action is required to remove an isolated specimen so as not to slow the progress of construction operations. “Pluck-and-run” recovery involves exploratory probing around a partially exposed fossil specimen to determine its dimensions, the application of consolidants (Acryloid, Butvar, or Vinac) to stabilize any damaged or weakened areas of the fossil, and removal of the specimen in a block of matrix. Hand quarrying typically consists of site specific “mining” of fossil-rich sedimentary rock layers without establishment of a geographic grid framework. Fragile fossils are stabilized as described above. Hand quarrying and the “pluck-and-run” techniques can typically be carried out in several minutes, to an hour, thus minimizing the duration of any work stoppage.

Particularly large and/or articulated vertebrate fossils require special handling because of their size and/or fragility and are typically recovered in a process called “plaster-jacketing.” The process begins by isolating a partially exposed specimen from the temporary exposure in a matrix-supported sedimentary pedestal. The pedestal is then slightly undercut at its base to form an overhanging lip and a layer of damp newsprint or tissue paper is placed on the upper surface of the block. Strips of burlap fabric are then soaked in a mixture of Plaster-of-Paris and laid across the matrix block to dry. Depending upon the volume of the block, one, two, or more layers of plaster-soaked burlap strips are formed on the block. Especially large blocks (over two feet in length) are reinforced with wooden or metal splints. Once the plaster hardens, the supporting pedestal is undercut and the block turned over. Hand tools are then used to remove any excess matrix from the bottom of the block and a plaster and burlap cap constructed on the inverted bottom of the block using the same methods described above. When all layers of plaster are dry and hard, the completed plaster “jacket” is then labeled with a field number and north arrow and removed from the field. Depending on the size, complexity, and number of plaster jackets, recovery may require several hours to several days to complete. The discovery of a concentration of large vertebrate fossils (e.g., a bone bed) would require more time (e.g., several days) for recovery.

A2.2.4 MICRO-VERTEBRATE FOSSIL RECOVERY

Many significant fossils often are too small to be readily visible in the field (e.g., small mammal teeth, fish otoliths, lizard limb bones), but are nonetheless significant and worthy of attention because of their potential to provide information concerning paleoenvironments, paleoclimates, and geologic age. If sedimentary horizons are observed that either contain micro-vertebrate fossils, or appear to have high potential to contain such fossils, these horizons shall be sampled by collecting bulk quantities of sedimentary matrix. These bulk matrix samples then undergo laboratory processing in order to isolate the microfossils. Specific procedures for recovery of micro-vertebrates are described below. It should be emphasized that once a bulk matrix sample has been collected and removed from the Project Area, construction activities can resume.

For micro-vertebrate fossils (e.g., small mammal, bird, reptile, amphibian, or fish remains) guidelines developed by the Society of Vertebrate Paleontology (SVP, 2010) define an adequate sample as comprising “...4.0 cubic meters (6,000 lbs. or 2,500 kg) of matrix for each site, horizon or paleosol.” However, the uniqueness of the micro-vertebrate fossils recovered may justify screen washing even larger amounts... as determined by the Project Paleontologist.” It is understood that conditions in the field may be such that recovery of 6,000 lbs. matrix samples is not possible, and a smaller matrix sample may be warranted at the discretion of the Project Paleontologist. Ideally,

micro-vertebrate fossil sites will occur within a layered sequence of strata from which several successive strata may yield individual micro-vertebrate fossil horizons. A maximum of one bulk matrix sample per fossil horizon shall be collected. This sample shall be assumed to contain a representative assemblage of fossils preserved in that fossil horizon. For each sample collected, it is recommended that a 200 lb. (90 kg) subsample be initially processed to determine the fossil productivity of the larger sample. Generally, if five or more complete mammal teeth are recovered from the subsample, the remainder of the sample should be processed. If fewer teeth are recovered, processing should cease.

A2.2.5 PALEOBOTANICAL FOSSIL RECOVERY

Paleobotanical specimens typically occur in fine-grained, laminated strata (e.g., shale) and will require special recovery techniques. When fossil plant sites are discovered, they initially should be evaluated in terms of fossil preservation, specimen abundance, and taxonomic diversity to determine the level of sampling. For sites with well-preserved and relatively complete leaves, an adequate sample would aim to recover at least 20 specimens of each recognized leaf type (species or morphotypes). Large blocks (>2 feet in diameter) of sedimentary rock typically can be hand quarried from the temporary outcrop and then split along bedding planes to reveal compressed fossil plant material (e.g., leaves, stems, and flowers). Individual slabs are then wrapped in tissue paper or newsprint to minimize destruction of the fossils during desiccation. In some cases, specimens that are delaminating or flaking may need to be coated with special consolidants (e.g., Vinac or Butvar). It should be emphasized that once an adequate sample has been collected and removed from a paleobotanical discovery site, construction activities can resume.

A2.2.6 TIME REQUIRED FOR FOSSIL RECOVERY

As discussed above in Section A2.2.4, the vast majority of fossil salvages can be accomplished relatively quickly, requiring a few minutes to a few hours of focused recovery work to complete. However, recovery of large vertebrate fossils or concentrations of vertebrate fossils may require several days to weeks to complete. In many cases, fossil recovery may be expedited through the temporary use of one-site heavy equipment to remove sedimentary overburden, collect bulk matrix samples, and/or lift plaster jackets. It should also be emphasized that avoiding or minimizing construction delays can be achieved by diverting earthwork operations to other areas of the project area while fossil recovery work is under way.

A3.0 POST CONSTRUCTION

In the event fossils are discovered and salvaged, the fossils will be prepared, identified, catalogued, and stored in a recognized professional repository and a Final Paleontological Mitigation report written that summarizes the results of pre-construction, during-construction, and post-construction activities (if applicable) and findings. If no fossils are salvaged over the course of monitoring, an abbreviated Final Paleontological Mitigation report shall be prepared.

A3.1 FOSSIL PREPARATION

Fossil remains collected during the monitoring and salvage portion of the project will be cleaned, repaired, and/or screenwashed as described below. Fossil preparation may be conducted at the laboratory of the contracted Project Paleontologist or the designated repository, and shall follow the standards of the designated repository. Prior to commencement of work, an estimate of fossil

preparation costs should be developed based on number and type of specimens, preparation labor rates, preparation supply needs.

A3.1.1 SPECIMEN PREPARATION

Preparation of fossil specimens will involve removal of extraneous and concealing sedimentary matrix from specimens using various mechanical methods including pneumatic air scribes, micro-sandblasters, and simple hand tools (hammers, chisels, X-acto knives, brushes, dental picks, and pin vises). Fossil preparation will also involve consolidation of weak or porous specimens by the application of specialized media including polyvinyl acetate resins (e.g., Vinac), acrylic resins (e.g., Acryloid), or polyvinyl butyral resins (e.g., Butvar). Repair of broken/damaged specimens will require the use of various adhesives including cyanoacrylate glues (e.g., Zap) polyvinyl acetate emulsions (e.g., carpenter's glue), and polyvinyl butyral resins (e.g., Butvar).

A3.1.2 SCREENWASHING

Recovery of micro-vertebrate fossils will be accomplished by screenwashing bulk samples of fossil-bearing sedimentary matrix. The process begins by breaking large blocks into 2-3 cm cubes to facilitate air-drying of the matrix. Once dry, the matrix is placed into water-filled 5 gallon plastic buckets to soak for no less than 15 minutes with stirring. The slurry is then poured onto nested 20 (0.84 mm openings) and 30 (0.59 mm) mesh stainless steel screens placed in water-filled troughs. Manual agitation of the screens forces the fine clays and silts through the mesh and concentrates the coarser sand and fossil material on the screens. The screens are then placed at a tilt facing the sun to dry. Once dry, the coarse concentrate is transferred into plastic sample bags and labeled with all pertinent site locality data.

A3.1.3 HEAVY LIQUID FLOATATION

Screenwashed concentrates can be further concentrated by the use of heavy liquids (e.g., zinc bromide and/or tetrabromoethane) to concentrate particles of equal density. Generally, fossil bones and teeth sink along with heavy mineral grains (e.g., magnetite) while lighter quartz and feldspar mineral grains float. This separation process produces a very rich concentration of fossil remains, typically isolated teeth of small mammals (e.g., rodents).

A3.1.4 PALEOBOTANICAL PREPARATION

Preparation of plant fossils will involve first splitting slabs of mudstone/siltstone matrix along laminations to reveal individual or composite leaf impressions. Any remaining matrix still obscuring the impressions will then be removed with X-acto knives. The exposed impressions may require stabilization with specialized media (e.g., Vinac or Butvar).

A3.2 FOSSIL CURATION

Following preparation of salvaged fossil remains the specimens will be sorted/picked, identified, and catalogued as described below. Fossil curation may be overseen by the contracted Project Paleontologist, or by the designated repository, and shall follow the standards of the designated repository. Prior to commencement of work, an estimate of fossil curation costs should be developed based on number and type of specimens, curation labor rates, curation supply needs.

A3.2.1 SORTING/PICKING

Fossils require sorting/picking to group together specimens of the same taxon (e.g., species and/or genus) into individual taxon lots.

A3.2.2 IDENTIFICATION

Once sorted, individual taxon lots will then be identified to the lowest taxonomic level practical (e.g., family, genus, and/or species).

A3.2.3 CATALOGUING

Sorted and identified specimens are then assigned unique specimen catalogue numbers and entered into an electronic catalogue database. A specimen number may represent a single fossil specimen or a batch of specimens belonging to a single species. Catalogue numbers are written on individual specimens using India ink on a patch of white acrylic paint. Curation also involves placement of taxon lots into archival specimen trays with labels containing relevant taxonomic, geologic, and geographic information.

A3.2.4 LOCALITY DATA

Formal descriptions of fossil collection locality records, including geographic, geologic, taphonomic, and collection data, need to be compiled and stored electronically with the specimen catalogue data.

A3.3 FOSSIL STORAGE

For any recovered fossils from BLM managed lands within the Buena Vista Hills MDP, the fossils will be professionally curated and stored in the designated professional repository, as outlined in Section A1.2. The repository will professionally curate and adequately store the donated fossils, though ownership of the fossils will be retained by the BLM. Adequate storage shall include conservation of specimens in a stable environment away from flammable liquids, corrosive chemicals, organic materials subject to mildew, and sources of potential water damage. Typically, this is accomplished by placing curated specimens in archival quality, steel drawers and cabinets, which are housed in climate-controlled collection rooms. Specimens shall be available for study by future researchers, students, and citizen scientists, and thus shall be stored in a fashion that allows for retrieval of individual specimens and associated collection data. Specimen storage should be accompanied by supporting data (e.g., field notes, GPS data, photographs, geologic maps, stratigraphic reports), and fossil preparation data (e.g., description of preparation techniques and materials used for individual specimens).

For any fossils recovered from private surface lands for projects conducted on split-estate, fee land, or connected action projects, the fossils are the property of the surface land owner. In such instances, the surface land owner is strongly encouraged to donate fossils to a professional repository, who will curate and adequately store the fossils, as outlined above.

A3.4 FINAL PALEONTOLOGICAL MITIGATION REPORT

A Final Paleontological Mitigation report (PMR) will be completed that presents the results of the implementation of this paleontological mitigation plan, for projects that recover fossils and also for projects where no fossils are discovered. For projects that recover fossils, the report will include discussions of the methods used, stratigraphic section(s) exposed, fossils collected, and significance of the recovered fossils relative to the research themes and questions. A complete inventory of salvaged, prepared, and curated fossils will be included. For projects where no fossils are recovered, an abbreviated technical report that summarizes the field methods used and stratigraphy exposed should be completed. All PMR's will be submitted to the BLM Bakersfield Field Office for review and approval.

**United States Department of Interior
Bureau of Land Management
Bakersfield Field Office**

Environmental Assessment

**California Resources Elk Hills
Buena Vista; Application for Permit to Drill Well 645H-12D
DOI-BLM-CA-C060-2019-0108-EA
Programmatic Project #68**

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Chapter 1. Purpose and Need for Action

PURPOSE AND NEED

Bureau of Land Management (BLM) proposes to approve one (1) Application for Permit to Drill (APD) submitted by California Resources Elk Hills, LLC (CREH) to drill Well 645H-12B on federal mineral lease CAS019343 located in Section 12, T32S, R24E, MDBM. The proposed project would occur on public lands containing BLM administered subsurface minerals within the Buena Vista Oilfield. Project implementation would include the installation of a power line 2,036 feet in length, and the installation of an above ground flow line spanning 22,787 feet suspended by sleepers placed every 25 feet, construction of the well pad, and the drilling of Well 645H-12D. The flow line route will be staked along existing roadways. Access for the proposed well pad location is by existing dirt roadways located on the west and east side of the proposed pad. The proposed well is in a high density existing field and no new permanent facilities are proposed at this time. Temporary facilities necessary for construction and drilling would be sited on the well pad and approved areas of disturbance. If the well is considered non-productive, it would be plugged and abandoned and the project site would be restored. No hydraulic fracturing of the well is proposed due to the characteristics of the reservoir and target formation. Estimated habitat disturbance for the project is **2.685 acres, requiring a total of 7.012 acres of compensation and 2.136 acres of replacement**, to meet conditions of the 2017 Programmatic Biological Opinion on Oil and Gas (08ESMF00-2016-F-0683).

The purpose of the proposed action is to provide CRC with the authority to drill 1 new oil well and stage associated facilities required to increase production from their federal mineral lease CAS019343 and to supply energy resources to the American public. The need for the proposed action is to respond to the APD submitted by the applicant to conduct operations on public lands containing BLM administered subsurface minerals, under statutory authority of the *Federal Land Policy and Management Act of 1976*, the *Mineral Leasing Act of 1920*, as amended, and 43 CFR 3160.

This Environmental Assessment (EA) has been prepared in compliance with the National Environmental Policy Act (NEPA) and other relevant federal and state laws and regulations. The purpose of this document is to disclose and analyze the environmental consequences that are anticipated from the construction of power line, flow line, well pad, and the drilling of Well 645H-12D, followed by interim and final reclamation on federal mineral lease CAS019343. BLM will decide whether to approve the APD submitted by CREH and under what conditions.

CONFORMANCE WITH BLM LAND USE PLANS

The proposed action has been reviewed for conformance with the Bakersfield Resource Management Plan approved on December 22, 2014; it has been determined that the proposed action conforms with the land use plan, terms, and conditions as required by 43 CFR 1610.5. The proposed action and modifications were specifically provided for in the following land use plan decisions and objectives:

- **[MM-D-1.1.5]** “Identify approximately 1,011,470 acres as open to fluid mineral leasing, subject to major constraints (both CSU- Protected Species and CSU- Sensitive Species).…”
- **[MM-O-1]** “Facilitate reasonable, economical, and environmentally sound exploration and development of leasable minerals while minimizing impacts to other resources.”

SCOPING AND ISSUES

Internal scoping was conducted among BLM Bakersfield Field Office staff, including Natural Resource Specialist Fernando Baños and Archaeologist Stacey Escamilla.

BLM conducts external scoping on routine NOSs and APDs by posting notification that it is considering the NOS(s)/APD(s) on the E-Planning public website, which initiates the 30-day scoping period. In addition, APDs are published nationally at the time of acceptance at <https://reports.blm.gov>. The following NOS/APD was posted on May 15th, 2019 on the E-Planning website to solicit public comment or requests to review the Draft EA. No comments were received.

The issues identified during internal scoping include:

1. How would the activities under each alternative contribute to emissions of criteria pollutants and greenhouse gases, and would these impacts to air quality and climate change, if any, be significant?
2. How would the activities under each alternative contribute to potential impacts to Special Status Species, and would these impacts, if any, be significant?
3. How would the activities under each alternative influence rates of water and wind erosion to soils, and would these impacts, if any, be significant?
4. How would the activities under each alternative contribute to degradation of surface and groundwater, and would these impacts, if any, be significant?
5. How would the activities under each alternative contribute to degradation of cultural resources, Native American values, and paleontological resources, and would these impacts, if any, be significant?
6. How would the activities under each alternative affect grazing operations and opportunities, and would these impacts, if any, be significant?

These issues will be analyzed to make a reasoned choice among the alternatives.

RELATIONSHIP TO STATUTES, REGULATIONS AND OTHER PLANS

This project is similar in magnitude and scope and is located within the same geographical area as many other fluid mineral actions undertaken within the BLM Bakersfield Field Office. As such, the Relationship to Statutes, Regulations, and Other Plans section from the California Resources Elk Hills, LLC, Buena Vista; 2 Applications for Permit to Drill [Environmental Assessment \(DOI-BLM-CA-C060-2018-0130-EA\)](#) is hereby incorporated by reference. The document incorporated by reference outlines applicable provisions from the following:

- Oil and Gas Laws and Regulations
- Endangered Species Act
- Clean Air Act
- National Historic Preservation Act of 1966, as amended

- Paleontological Resources Preservation Act
- Clean Water Act
- Safe Drinking Water Act
- Resource Conservation and Recovery Act

Chapter 2. Proposed Action and Alternatives

ALTERNATIVE 1: PROPOSED ACTION

Bureau of Land Management (BLM) proposes to approve one (1) Application for Permit to Drill (APD) submitted by California Resources Elk Hills, LLC (CREH) to drill Well 645H-12B on federal mineral lease CAS019343 located in Section 12, T32S, R24E, MDBM. The proposed project would occur on public lands containing BLM administered subsurface minerals within the Buena Vista Oilfield. Project implementation would include the installation of a power line 2,036 feet in length, and the installation of an above ground flow line spanning 22,787 feet suspended by sleepers placed every 25 feet, construction of the well pad, and the drilling of Well 645H-12D. The flow line route will be staked along existing roadways. Access for the proposed well pad location is by existing dirt roadways located on the west and east side of the proposed pad. The proposed well is in a high density existing field and no new permanent facilities are proposed at this time. Temporary facilities necessary for construction and drilling would be sited on the well pad and approved areas of disturbance. If the well is considered non-productive, it would be plugged and abandoned and the project site would be restored. No hydraulic fracturing of the well is proposed due to the characteristics of the reservoir and target formation. Estimated habitat disturbance for the project is **2.685 acres**.

The proposed well pad for Well 645H-12D measures 200 feet by 500 feet. Temporary and permanent disturbance would be necessary to construct the well pad. Temporary facilities would be placed on the well pad location during the exploratory phase.

No underground source of present or potential future drinking water as defined in 40 CFR 144.3 exists in the project area. The Tulare formation extends to the surface and is an exempt aquifer (see attached) as defined in the 1982 Underground Injection Control Program Memorandum of Agreement (MOA) between California Division of Oil and Gas Resources and the United States Environmental Protection Agency.

Approximately 6,857 barrels (288,000 gallons) of fresh water would be used for dust abatement and drilling; all water would be obtained from the West Kern Water District and trucked to the project site. Fresh water would be applied to the surface for dust abatement and used during the drilling phase for intermediate/production casing, stimulation, and surface casing.

Produced fluid associated with the proposed wells will be treated at the Buena Vista Hills reclaimed water system (owned and operated by CREH) located at Section 36B facility (T31S, R23E) for processing. Processing can include de-oiling, biocide treatment, & filtration. The

processed reclaimed water will be injected into Class II wells in accordance with CREH's underground injection permits under UIC project numbers #08006022, #08006020, or #08006009

CREH has attached a copy of the NOA (Notice of Applicability) of Water Quality Order 2003-0003-DWQ issued by the regional water board. CREH will not be disposing of drilling water off-site. All drilling water will be contained within the permitted drilling sump. Drilling water will be allowed to evaporate prior to sump closure activities. The sump will be closed in accordance with the NOA.

Non-hazardous, water-based mud would be used in drilling operations. All cuttings and drilling fluids would be collected in a reserve pit measuring 250 feet by 30 feet and 13 feet in depth. Fluids would be solidified and cuttings will remain in the reserve pit. Prior to pit closure testing would be conducted, and all operations would be in compliance with all Federal, Tribal, State, and local laws and requirements.

Well failures are not anticipated in the new wells proposed in the Buena Vista oilfield. CREH proposes to use current best available technologies to drill and complete the proposed wells; modern controls and monitoring will be in place to prevent failures of mechanical well integrity. All aspects of well completions and design are conducted according to American Petroleum Institute standards whereby specifications and recommended practices are detailed to ensure mechanical well integrity.

The Buena Vista field does not have any protected groundwater, but efforts are still made to insure well integrity. The Tulare aquifer, which is exempt, is isolated from the contents of the well during drilling and production operations by a combination of steel casing and cement sheaths, and other mechanical isolation devices installed as a part of the well construction process. The impermeable rock formations that lie between the hydrocarbon producing formations and the Tulare have isolated the hydrocarbon accumulation over millions of years. The construction of the well is done to prevent communication (the migration and/or transport of fluids between these subsurface layers).

The primary method used for isolating the Tulare during drilling operations consists of drilling the wellbore through the exempt aquifer, immediately installing a steel pipe (called casing), and cementing this steel pipe into place. All state drilling regulations specifically address groundwater protection, including requirements for the surface casing to be set below the lowest groundwater aquifer. The steel casing isolates the zones from material inside the wellbore during subsequent drilling operations and, in combination with other steel casing and cement sheaths that are subsequently installed, isolates the groundwater with multiple layers of protection for the life of the well.

The subsurface zone or formation containing hydrocarbons produces into the well, and that production is contained within the well all the way to the surface. This containment is what is meant by the term "well integrity." Moreover, regular monitoring takes place during drilling and production operations to ensure that these operations proceed within established parameters and in accordance with the well design, well plan, and permit requirements.

Drilling equipment and materials would be placed on the proposed well pad locations and the pads would be cleared of unnecessary items following well completion. CREH is restricted to use of existing roads and approved areas of disturbance, including those approved with the APD, during and following project implementation.

CREH has stated that there are no plans to conduct well stimulation activities regulated by California Senate Bill No. 4 (hydraulic fracturing, matrix or fracture acidization) on the proposed well because the reservoir characteristic and geologic rock properties in the Antelope formation within the project area do not require well stimulation to produce.

Design Features/Additional Conditions of Approval (COAs) for Surface

The following Design Features and conditions of approval are part of the proposed action:

CREH shall comply with all applicable Federal, Tribal, State, and local laws during project implementation.

Biological Resources

This project is covered under the 2017 Oil and Gas Programmatic Biological Opinion (08ESMF00-2016-F-0683) because it falls within the requirements for projects analyzed and authorized under that biological opinion. The 2017 Oil and Gas Programmatic Biological Opinion provides take coverage for authorization of individual projects occurring on surface and subsurface lands administered by the BLM in Kings and Kern Counties that disturb less than 10 acres of habitat or that encompass linear actions less than 10 miles long. This project occurs in Kern County and disturbs 2.685 acres of habitat, thus satisfying both requirements for coverage under the 2017 Oil and Gas Programmatic Biological Opinion. Compliance with the Project Specific Provisions (**Attachment 1**) of this Opinion is required. **A preliminary estimate of compensation is 9.697 compensation acres (2.136 permanent acres compensated at 3:1 = 6.408+ 0.549 temporary acres compensated at 1.1:1 = 0.604 + 2.136 replacement acres).**

In addition, CREH shall comply with all of the “Avoidance & Mitigation Actions” recommended by consulting Biologist Brian Berry (Stantec) in his May 10, 2019, Sensitive Species Review Form (**Attachment 2**).

Cultural Resources

In the event of inadvertent discovery of cultural resources during project implementation, the BLM Field Office Cultural Staff and Field Manager (661-391-6000) shall be immediately notified by personnel responsible for the project. All work at the site of discovery, and in any other locations where damage to the cultural resource could occur, shall also cease until written approval by the BLM.

If human remains are inadvertently discovered on BLM managed lands, all activity will immediately cease surrounding the unanticipated discovery. Project personnel will ensure that the discovery is secured and protected and will immediately notify the BLM Field Manager (661-391-6000). The BLM will adhere to current regulations regarding the treatment of human

remains (see BLM California Information Bulletin No. CAIB-2016-012). Access and use of the area may only proceed with written approval from the Field Manager once the appropriate level of review has been determined and completed.

Paleontological Resources

The project location occurs within geological formations which have been identified as sensitive for significant fossil remains; therefore, a paleontological mitigation and monitoring plan is recommended.

All ground-disturbing activities within the project area which are subject to the mitigation measures are outlined in the Paleontological Resources Monitoring and Mitigation Plan (PRMMP) included in the Conditions of Approval attached to this document.

Construction and Interim Reclamation

All permanent above-ground structures (e.g., production equipment, etc.) not subject to safety requirements shall be painted to blend with the natural color of the landscape. The paint used will be a color which simulates “Standard Environmental Colors.” The colors selected for the project location are Covert Green or Carlsbad Canyon.

At the beginning of construction, topsoil (approximately the top four inches of soil) shall be removed from the project area and stockpiled on an existing pad or previously disturbed surface in close proximity to the project site. Subsequent to well completion, topsoil will be re-applied to the cut and fill slopes. “Well completion” is a technical term used to describe the final phase of well drilling; “well completion” is not synonymous with the final phase of project implementation. Prior to applying topsoil to the sump, it will be cleaned, ripped to a minimum depth of 18 inches, and re-contoured to match the surrounding topography. Remaining topsoil will be stockpiled on an existing well pad or other previously disturbed surface and retained for future reclamation. Topsoil will be retained for no more than one year.

Reclamation activities will be timed to coincide with precipitation events, if possible, to promote growth of vegetation and ensure timely restoration.

The project occurs in an inactive portion of a BLM grazing allotment and protective fencing of reclamation may be necessary. CREH shall consult BLM as to the need, design, and timing for construction and removal of fencing prior to implementation of reclamation activities.

Management of Noxious Weeds

A site-specific weed control Environmental Assessment (EA) and a Pesticide Use Permit (PUP) must be completed before any use of pesticides on BLM lands. This can be a lengthy process and requires specific information, public notification, and review by the BLM State Office. In addition, any use of pesticides shall comply with all applicable Federal and State laws. Pesticides

shall only be used in accordance with their registered uses, must be on the list of pesticides approved for use on California BLM lands, and used within limitations imposed by the Secretary of the Interior. Applicators of herbicides must have completed pesticide certification training and have a Certified Pesticide Applicator's License. A Pesticide Use Report (PUR) must be completed within 48 hours of all herbicide applications and pesticide application records for the areas and acres treated must be submitted to the Authorized BLM Officer each year.

Final Reclamation

Disturbed lands shall be re-contoured to conform with existing undisturbed topography unless the BLM determines that re-contouring would result in negative impacts to special status species. No depressions shall be left that trap water or form ponds. All portions of final reclamation may be subject to additional cultural resources and paleontological inventory and may require a permit. The reclaimed landscape shall have characteristics that approximate the visual quality of the adjacent area with regard to location, scale, shape, color and orientation of major landscape features and meet the needs of the planned post disturbance land use.

The project occurs in an inactive portion of a BLM grazing allotment and protective fencing of reclamation may be necessary. CREH shall consult BLM as to the need, design, and timing for construction and removal of fencing prior to implementation of reclamation activities.

Final reclamation shall specifically achieve the following:

1. The reclaimed area shall be stable and exhibit none of the following characteristics:
 - a. Large rills or gullies (greater than 6 inches deep).
 - b. Perceptible soil movement or head cutting in drainages.
 - c. Slope instability on, or adjacent to, the reclaimed area in question.
2. The soil surface must be stable and have adequate surface roughness to reduce runoff and capture rainfall and snow melt. Additional short-term measures, such as the application of mulch, shall be used to reduce surface soil movement.
3. Vegetation production and species diversity (including shrubs) shall approximate the surrounding undisturbed area. The vegetation shall stabilize the site and support the planned post disturbance land use, provide for natural plant community succession and development, and be capable of renewing itself. This shall be demonstrated by:
 - a. Successful onsite establishment of species included in the planting mixture or other desirable species.
 - b. Evidence of vegetation reproduction, either spreading by rhizomatous species or seed production.
4. Habitat Restoration requirements from pages 26 and 27 of the 2017 Programmatic Biological Opinion.

ALTERNATIVE 2: NO ACTION

Under this alternative, BLM would not approve the APD Well 645H-12D, which would include construction of a new access road and well pad, and drilling Well 645H-12D, followed by interim and final reclamation on federal mineral lease CAS019343. By denying the application, the operator would be denied the opportunity or right to develop and produce the federal mineral estate.

Chapter 3. Affected Environment

This chapter briefly describes the physical and regulatory environment for elements that may be affected by the proposed action.

The following elements of the human environment were considered but determined to be either not present or unaffected by the proposed action and will therefore not be addressed further in this analysis:

- This project location does not occur within National Conservation Lands.
- The project does not contain essential fish habitat, and there are no wetlands or riparian zones in the project area.
- The project would not affect low income or minority populations.
- The proposed project would not affect recreational experience as it occurs within a BLM administered oil and gas lease that does not currently attract recreational use, nor is it anticipated to attract significant recreational use in the future.
- Visual resources would not be impacted since the project occurs within a Class IV Visual Resource Management area that is not visible from any main access road or highway and is not likely to attract attention.
- The Cultural resource surveys were conducted for all areas that could be potentially affected by the proposed project (BLM Cultural Resource Inventory Report #s CA-160-C/V-886). Additional information pertinent to cultural resource analysis and the NHPA Section 106 process may be found in Cultural Resources Memo 19-0108-EA.
- Tribal notification and coordination was previously conducted for potential future development within an area which includes the project locations. No places of cultural importance to Native American tribes were identified within the project areas as a result of this coordination.

Air Quality

The proposed project area is located in Kern County, California, and within the San Joaquin Valley Air Basin. At the state level, air regulatory duties lie with the California Air Resources Board (CARB) and at the federal level with the U.S. Environmental Protection Agency (EPA), Region IX. Oversight authority for air quality matters in California has been delegated to the county (District) level. The San Joaquin Valley Air Pollution Control District maintains district level authority for the project area. This project is similar in magnitude and scope and is located within the same geographical area as many other fluid mineral actions undertaken within the BLM Bakersfield Field Office. As such, the affected environment section for Air Quality from the California Resources Elk Hills, LLC, Buena Vista; 2 Applications for Permit to Drill

[Environmental Assessment \(DOI-BLM-CA-C060-2018-0130-EA\)](#) is hereby incorporated by reference. The document incorporated by reference describes the regulatory environment and quality of air within the project area.

Climate Change

This project is similar in magnitude and scope and is located within the same geographical area as many other fluid mineral actions undertaken within the BLM Bakersfield Field Office. As such, the affected environment section for Climate Change from the California Resources Elk Hills, LLC, Buena Vista; 2 Applications for Permit to Drill [Environmental Assessment \(DOI-BLM-CA-C060-2018-0130-EA\)](#) is hereby incorporated by reference. The document incorporated by reference describes the regulatory environment for Climate Change within the project area.

Biological Resources

The project is proposed on public surface that occurs within an area identified as “Red Zone” or Habitat Corridor in the Bakersfield RMP and the 1998 *Recovery Plan for Upland Species of the San Joaquin Valley, California* (USFWS, 1998). This project is similar in magnitude and scope and is located within the same geographical area as many other fluid mineral actions undertaken within the BLM Bakersfield Field Office. As such, the affected environment section for Biological Resources from the California Resources Elk Hills, LLC, Buena Vista; 2 Applications for Permit to Drill [Environmental Assessment \(DOI-BLM-CA-C060-2018-0130-EA\)](#) is hereby incorporated by reference. The document incorporated by reference describes the environmental setting for Biological Resources within the southern San Joaquin Valley.

Reconnaissance-level surveys to identify the potential for the occurrence of listed species in the general project area were conducted by consulting Biologist Brian Berry (Stantec) on April 2nd, and April 5th, 2019. A project-specific onsite inspection was completed by BLM Natural Resource Specialist Fernando Baños on May 30, 2019. No federally listed plant or animal species or their sign were observed on the project area during the survey.

Paleontological Resources

Every geologic unit can be assigned a Potential Fossil Yield Classification (PFYC) class based on the probability and abundance of known vertebrate fossils and scientifically significant invertebrate and plant fossils (BLM 2007). The PFYC scheme ranges from very low (PFYC 1) to very high (PFYC 5) depending on the potential fossil yield (BLM 2016). Unknown fossil potential is assigned to geologic units that do not have a clear PFYC assignment (PFYC U). Typically paleontological resource compliance is required for earthwork occurring within PFYC classes 3, 4, 5, or U rock units.

The results of a paleontological resource screening indicated that the project area occurs within the Tulare Formation which has been assigned a PFYC value of 4, due to a high potential for the presence of fossil remains (BLM Paleontological Resources Inventory Report # CA-160-P-03).

Soil Resources

CREH proposes to construct a new access road and well pad. In general, the soils within the project footprint are undisturbed, except those within and adjacent to the existing access roads. There is one soil map unit present in the project footprint:

- **Bitterwater gravelly sandy loam, 15 to 50 percent slopes (# 117)** – This soil map unit is present on hillslopes. The typical profile of these soils are sandy loam from 0 to 60 inches and weathered bedrock below. These soils are well drained and not designated as prime farmland.

Soil Erosion Factors

Soil Map Unit	K Factor*	Wind Erodibility Group**
Bitterwater gravelly sandy loam, 15 to 50 percent slopes (#117)	0.28 Moderately low	3 Moderately high

*Values of K can range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

**A wind erodibility group consists of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The wind erodibility group provides an indication of how susceptible areas disturbed by construction activities are to wind erosion. Soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.

Water Quality and Quantity

The proposed project is outside the boundary of any groundwater basin established by the California Department of Water Resources, Groundwater Management Bulletin 118. The target formation, Antelope Shale, does not contain an underground source of drinking water. In addition, there is no record of fresh water in the Buena Vista/McKittrick Oilfield – Main Area according to the California Oil and Gas Fields, Volume 1 – Central California Report 1998. There are no perennial rivers, lakes, or streams in the project area. There are no ephemeral blue-line drainages in the direct project footprint and two (2) located north and northeast of the project footprint.

As stated in the Proposed Action, approximately 6,857 barrels (288,000 gallons) of fresh water would be used for dust abatement and drilling; all water would be obtained from the West Kern Water District and trucked to the project site.

Chapter 4. Environmental Impacts

This section describes the environmental impacts of the Proposed Action and No Action Alternatives. This analysis addresses the direct and indirect effects of implementing the proposed project and includes the identified measures and COAs described in Chapter 2.

DIRECT AND INDIRECT IMPACTS

Air Quality

Proposed Action:

The proposed project would result in the emission of criteria pollutants for which the San Joaquin Valley Air Basin has a non-attainment or maintenance designation, including 8-hour ozone, PM₁₀, and PM_{2.5}. These emissions are associated with combustion sources such as diesel drill and completion/workover rig engines, drill pad construction equipment (i.e., dozers, backhoe, grader, etc.), equipment trucks, water trucks, drill rig crew trucks/vehicles, and portable lift equipment. In

addition, localized impacts to air quality would occur during project implementation as a result of soil disturbance and fugitive dust emissions.

CREH has estimated project-related emissions for all pollutants of concern for the construction and drilling phase of the project. Emissions associated with site preparation were estimated using the Road Construction Emissions Model (RCM), Version 7.1.5.1 software, recommended by the San Joaquin Valley Unified Air Pollution Control District for use in construction projects that involve the release of fugitive dust emissions. OFFROAD and EMFAC emission factors were used to calculate emissions of criteria pollutants from equipment and mobile sources. The following table compares estimated emissions from construction and drilling activities with the EPA-determined *de minimis* emissions levels for all non-attainment and maintenance criteria pollutants in the San Joaquin Valley Air Basin.

**Comparison of Construction and Drilling Emissions to Federal *De minimis* Levels for
San Joaquin Valley Air Basin**

Regulated Pollutant	Federal Designation	<i>De minimis</i> level (tons/year)	Emission Estimate for Project (tons/year)
Ozone (ROG)	Extreme non-attainment	10	0.0995
Ozone (NOx)		10	1.9104
PM10	Maintenance	100	0.0509
PM2.5 (Direct emissions, SO ₂ , NO _x , VOC, or ammonia)	Non-attainment	100	0.3947

The proposed project is consistent with the California Air Resources Board State Implementation Plan and emissions would not exceed the *de minimis* emission levels and are exempt from conformity determination (40 CFR Part 93.153). As a result, no formal conformity analysis or determination is required.

As incorporated by reference from Chapter 3 of the California Resources Elk Hills, LLC, Buena Vista; 2 Applications for Permit to Drill [Environmental Assessment \(DOI-BLM-CA-C060-2018-0130-EA\)](#), there are a number of SJVAPCD rules that will minimize air quality impacts. Implementation of these existing regulatory mechanisms would offset the increase in potential emissions related to the proposed project.

The indirect effects to air quality from the Proposed Action alternative would occur downstream from the project site through transportation, refining, and consumption of the end product if Well 645H-12D is deemed economical and is produced. However, due to the large scale of oil and gas

production in California and the rate at which existing wells are being abandoned, the addition of one producing oil well would not constitute a significant addition of oil to the market, and burning of that oil would likewise not constitute a significant emission of criteria pollutants.

No Action:

There would be no impacts to air quality from the No Action Alternative outside of those already occurring in the San Joaquin Valley Air Basin because the project would not occur. Any impacts on site would remain the same in absence of the proposed project.

Climate Change

Proposed Action:

The proposed action would result in emissions of GHGs that are known to contribute to global climate change. These emissions are associated with combustion sources such as diesel drill and completion/workover rig engines, drill pad construction equipment (i.e., dozers, backhoe, grader, etc.), equipment trucks, water trucks, drill rig crew trucks/vehicles, and portable lift equipment. Emissions of GHGs could also occur through venting or fugitive losses from valves and fittings, pumps, compressors, and the well head.

CREH estimated project-related GHG emissions. It was estimated that the project would emit 248.40 tons of CO₂ and 249.24 tons of CO_{2e}. Put into perspective, the California Air Resources Board estimated a total of 440.4 million metric tons of CO_{2e} emitted to the atmosphere in 2015 (CARB, 2017), while this project would result in 449.24 metric tons. Thus, the emissions from the project would be inconsequential at a local and regional scale.

Climate change is a global phenomenon resulting from the accumulation of GHGs locally, then regionally, but GHG emissions resulting from the proposed action are inconsequential at the local scale due to the small scale of the project.

The indirect effects to climate change from the Proposed Action alternative would occur downstream from the project site through transportation, refining, and consumption of the end product if Well 645H-12D is deemed economical and is produced. Due to the large scale of oil and gas production in California and the rate at which existing wells are being abandoned, the addition of 1 producing oil well would not constitute a significant addition of oil to the market, and burning of that oil would likewise not constitute a significant emission of GHGs.

Chapter 3 of the California Resources Elk Hills, LLC, Buena Vista; 2 Applications for Permit to Drill [Environmental Assessment \(DOI-BLM-CA-C060-2018-0130-EA\)](#) describes the risks and threats associated with the climate change, including increases in global temperature and impacts to natural and human systems. The cumulative impacts section of this environmental assessment does not include Climate Change because the phenomenon is innately a result of cumulative impacts, and analysis of greenhouse gas emissions serves as a proxy for assessing potential climate change effects. Thus, the discussion of direct and indirect impacts of the proposed action on global climate change adequately address cumulative impacts as well.

No Action:

There would be no additional impacts to the trajectory of global climate change from the No Action alternative; implementing this alternative would result in no net gain of GHGs in the atmosphere because the project would not occur.

Biological Resources**Proposed Action:**

Project implementation would disturb 2.685 acres of habitat, although direct impacts to federally listed species would not be expected because no individuals or sign of species were observed within the project area. Implementation of the Design Features (COAs) would further reduce the potential for impacts. A “May Effect” determination has been made for all federally listed species. Adherence to provisions of the 2017 Oil and Gas Programmatic Biological Opinion (08ESMF00-2016-F-0683) would compensate for unavoidable impacts to listed species.

No Action:

There would be no additional impacts to biological resources from the No Action Alternative. However, the rejection of the APD would not alter the trajectory of listed species populations relative to APD approval because the amount of disturbance is inconsequential on a regional scale. Also, under the No Action alternative, there would be no off-site conservation of listed species habitat in perpetuity, and the impacts to habitat may only be postponed until the next APD is approved for the development of the mineral lease.

Paleontological Resources**Proposed Action:**

The project area is located on both BLM managed surface lands and split estate lands (private surface ownership, federal minerals). The entire project area is underlain by the Tulare Formation, which is identified as having a high potential for fossil resources (PFYC 4). Due to this potential, paleontological monitoring and specimen collection are recommended for all construction-related activities involving terrain modification. A Paleontological Resources Monitoring and Mitigation Plan (PRMMP) is included as an attachment to this document and all associated permits which describes how fossil discoveries would be salvaged, collected, and curated in a BLM approved museum repository.

Adherence to the PRMMP is required for all terrain modification activities (including pad and road grading, sump excavation, and subsurface trenching) occurring on BLM lands. For those portions of the project occurring on split estate lands, federal paleontological compliance requirements for projects conducted under the Mineral Leasing Act are subject to the discretion of the surface landowner. For this project, the landowner has elected **not** to waive the recommended mitigation and monitoring plan. Therefore, all aspects of this project involving grading, excavation, or other significant ground disturbance are subject to the attached PRMMP. It should be noted that any paleontological specimens collected from split estate lands during the implementation phase of this project are the property of the surface owner and may be dealt with

in any way that they see fit. The implementation of this plan mitigates all potential impacts to paleontological resources as a result of project activities.

No Action:

There would be no direct impacts to paleontological resources under the no action alternative. Fossils would stay in place, and there would be no ground disturbance in the area. As a result, there would be no opportunity to study depositional environments or collect fossils where there are no natural exposures. Leaving fossils buried does not allow an opportunity for scientific investigation. Mitigating for adverse effects to paleontological resources is a management practice that preserves resources and accommodates development.

Soil Resources

Proposed Action:

Soil disturbance would occur as a result of well pad and access road construction and drilling operations. Topsoil and soil horizons would be removed and/or mixed, changing soil-water dynamics and removing nutrients from the project site. In addition, soils would be compacted, which could lead to surface runoff, sediment carry, and erosion concerns. The likelihood of water and wind erosion are is moderately low and moderately high throughout the project area, respectively. However, CREH would minimize and mitigate these impacts by conducting interim reclamation utilizing site-specific topsoil on the well pad and cut and fill slopes subsequent to drilling operations. This would include all practicable measures to minimize erosion and stabilize disturbed soils. Also, CREH would conduct final reclamation at the project site when the well is abandoned. In addition, CREH would comply with all applicable federal, state, and local air quality rules and regulations in order to reduce emissions of particulate matter originating from soil disturbance at the project site.

CREH is required to comply with all federal, state, and local laws and regulations, including provisions of EPA regulation 40 CFR 112, Oil Pollution Prevention, and BLM California IM CA-92-124, Oil and Gas Guidelines for Undesirable Events (NTL-3A). Nonetheless, the potential remains for hydrocarbon and chemical leaks or spills to occur on the project site and contaminate soils during project implementation. Given the required regulatory compliance framework, the likelihood of these spills are low and the impacts to soils from spills would not be significant.

No Action:

There would be no impacts to soil from the No Action alternative because the project would not occur. However, implementation of the No Action alternative would not result in conservation of land in perpetuity, as required by the Oil and Gas Programmatic Biological Opinion. Although the intent of the Biological Opinion is to compensate for destruction of habitat, compensation and conservation of land through this Biological Opinion would result in the restriction of development, ultimately resulting in the restriction of soil disturbance as well.

Water Quality and Quantity

Proposed Action:

The proposed action would not result in direct or indirect impacts to underground sources of drinking water or surface waters. No underground sources of drinking water are known to exist in the project area. Surface waters are not expected to be directly or indirectly impacted because there are no blue-line drainages that would be altered on the project site and CREH would implement all applicable Design Features/Conditions of Approval for Surface, which would avoid erosion, sediment carry, and other potential impacts to the adjacent drainages in the general project area. In addition, the project would not result in fresh water quantity impacts because CREH would obtain fresh water from the West Kern Water District, a water management agency that implements water conservation measures and efficient use of urban water supplies under the California Urban Water Management Planning Act (West Kern Water District, 2016).

No Action:

There would be no impacts to water quality and quantity from the No Action alternative because the project would not occur.

CUMULATIVE IMPACTS

Air Quality

Proposed Action:

The direct and indirect impacts to air quality from the proposed action are miniscule at the local scale and inconsequential at the regional and global scale due to the small scale of the project. Thus, there would be no significant cumulative impacts.

No Action:

There are no cumulative impacts to air quality associated with the No Action alternative because the project would not occur.

Biological Resources

Proposed Action:

Compliance with the Project Specific Provisions of the 2017 Oil and Gas Programmatic Biological Opinion (08ESMF00-2016-F-0683) and other regulatory mechanisms such as EPA regulation 40 CFR 112, Oil Pollution Prevention, and BLM California IM CA-92-124, Oil and Gas Guidelines for Undesirable Events (NTL-3A) would effectively compensate for any direct or indirect effects to habitat and species in the San Joaquin Valley, including listed and sensitive species. BLM has made a “May Effect” determination for all federally listed species. Cumulative impacts from habitat disturbance would be minimized by purchasing off-site mitigation acreage for federal oil and gas projects, ensuring that land identified as core areas, linkages, or corridors be conserved as habitat.

No Action:

There are no cumulative impacts to biological resources associated with the No Action alternative because the project would not occur.

Paleontological Resources**Proposed Action:**

Due to the presence of the Tulare Formation, PFYC 4, requirements for paleontological resource mitigation would be implemented for any future projects involving major earthwork or excavation located on BLM surface lands within this lease area, thereby mitigating any potential cumulative impacts for these projects.

No Action:

There are no cumulative impacts to paleontological resources associated with the No Action alternative because the project would not occur.

Soil Resources**Proposed Action:**

Cumulative effects are expected to be negligible with the implementation of interim and final reclamation measures required in the Design Features. In addition, soils altered by project activities would be compensated for offsite as required by the Project Specific Provisions. Although the Provisions are intended to compensate for habitat disturbance, they effectively compensate for soil disturbance as well because development is restricted on compensation lands. Thus, soil disturbance would be inconsequential at a local, regional, and global scale with no cumulative impacts.

No Action:

There are no cumulative impacts to soil resources associated with the No Action alternative because the project would not occur.

Water Quality and Quantity**Proposed Action:**

There would be no cumulative impacts to water quality and quantity from the Proposed Action alternative because there would be no direct or indirect impacts.

No Action:

There are no cumulative impacts associated with the No Action alternative because the project would not occur.

Chapter 5. Consultation and Public Involvement**BIOLOGICAL CONSULTATION**

Formal consultation with the U.S. Fish and Wildlife Service was initiated in 2016. The Fish and Wildlife Service issued their “No jeopardy” biological opinion on December 22, 2017

(Programmatic Biological Opinion on Oil and Gas Activities on Bureau of Land Management Lands in the San Joaquin Valley, 08ESMF00-2016-F-0683).

PERSONS, GROUPS AND AGENCIES CONSULTED

Gabriel Garcia, Bakersfield Field Office Manager, BLM
Kevin Coodey, Acting Assistant Field Manager for Minerals, BLM
Daniel Padilla, Regulatory Advisor, CREH
Matthew Perry, Regulatory Advisor, CREH

SUMMARY OF PUBLIC PARTICIPATION

BLM conducts external scoping on routine NOSs and APDs by posting notification that it is considering the NOS(s)/APD(s) on the E-Planning public website, which initiates the 30-day scoping period. In addition, APDs are published nationally at the time of acceptance at <https://reports.blm.gov>. The following NOS/APD was posted on April 11, 2019 on the E-Planning website to solicit public comment or requests to review the Draft EA. No comments were received.

LIST OF PREPARERS

Fernando Baños, Natural Resource Specialist
Stacey Escamilla, Archaeologist

Chapter 6. References

Bakersfield Resource Management Plan, December 2014.

BLM Cultural Resource Inventory Report #LLCAC06000-886 Class III Inventory of 3,840 acres comprising all of section 2D, 4D, 12D (T32S/R24E), 18H (T31S/R25E), & 31G (T31S/R25E), and portions of sections 5D & 9D (T32S/R24E), KERN COUNTY, CALIFORNIA. 2014. ASM Affiliates. On file in the Southern San Joaquin Valley Information Center and the BLM Bakersfield Field Office

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**United States Department of the Interior
Bureau of Land Management
Bakersfield Field Office**

Finding of No Significant Impact (FONSI)

**California Resources Elk Hills
Buena Vista; Application for Permit to Drill Well 645H-12D
DOI-BLM-CA-C060-2019-0108-EA
Programmatic Project #68**

Background

Bureau of Land Management (BLM) proposes to approve one (1) Application for Permit to Drill (APD) submitted by California Resources Elk Hills, LLC (CREH) to drill Well 645H-12B on federal mineral lease CAS019343 located in Section 12, T32S, R24E, MDBM. The proposed project would occur on public lands containing BLM administered subsurface minerals within the Buena Vista Oilfield. Project implementation would include the installation of a power line 2,036 feet in length, and the installation of an above ground flow line spanning 22,787 feet suspended by sleepers placed every 25 feet, construction of the well pad, and the drilling of Well 645H-12D. The flow line route will be staked along existing roadways. Access for the proposed well pad location is by existing dirt roadways located on the west and east side of the proposed pad. The proposed well is in a high density existing field and no new permanent facilities are proposed at this time. Temporary facilities necessary for construction and drilling would be sited on the well pad and approved areas of disturbance. If the well is considered non-productive, it would be plugged and abandoned and the project site would be restored. No hydraulic fracturing of the well is proposed due to the characteristics of the reservoir and target formation. Estimated habitat disturbance for the project is **2.685 acres, requiring a total of 7.012 acres of compensation and 2.136 acres of replacement**, to meet conditions of the 2017 Programmatic Biological Opinion on Oil and Gas (08ESMF00-2016-F-0683).

The purpose of the proposed action is to provide CRC with the authority to drill 1 new oil well and stage associated facilities required to increase production from their federal mineral lease CAS019343 and to supply energy resources to the American public. The need for the proposed action is to respond to the APD submitted by the applicant to conduct operations on public lands containing BLM administered subsurface minerals, under statutory authority of the *Federal Land Policy and Management Act of 1976*, the *Mineral Leasing Act of 1920*, as amended, and 43 CFR 3160.

This Environmental Assessment (EA) has been prepared in compliance with the National Environmental Policy Act (NEPA) and other relevant federal and state laws and regulations. The purpose of this document is to disclose and analyze the environmental consequences that are

anticipated from the construction of power line, flow line, well pad, and the drilling of Well 645H-12D, followed by interim and final reclamation on federal mineral lease CAS019343. BLM will decide whether to approve the APD submitted by CREH and under what conditions.

Finding of No Significant Impact

On the basis of the information and analysis contained in the EA, and all information found in the record of this action, it is my determination that: (1) approval of the Proposed Action will not have significant environmental impacts beyond those already addressed in the Bakersfield Resource Management Plan, approved in December 2014; (2) the Proposed Action is in conformance with the Resource Management Plan; and (3) the Proposed Action does not have a significant effect on the human environment. Therefore, an environmental impact statement for the proposed action is not necessary and will not be prepared. This finding is based on the following discussion:

Context:

The proposed project is located on public land containing BLM administered subsurface minerals in Section 12, T32S, R24E, MDBM on CREH's federal mineral lease CAS019343. The discretionary action is to approve the APD submitted by CREH for the drilling of Well 645H-12D. The proposed activity is a site-specific action with minor localized effects on air quality, cultural resources, paleontological resources, soils, and special status plant and animal species in the immediate area. The EA details the effects of the action alternatives. None of the effects identified, including cumulative effects, are considered to be significant and do not exceed those effects described in the Resource Management Plan.

Intensity:

I have considered the potential intensity/severity of the impacts anticipated from the proposed action. The project would include construction of a new access road and well pad and drilling Well 645H-12D. The following discussion is organized around the Ten Significance Criteria described in 40 CFR 1508.27. The discussions below apply to all project elements contained within the EA:

1. Impacts may be both beneficial and adverse and a significant effect may exist regardless of the perceived balance of effects. Potential impacts include the emission of air pollutants, soil disturbance, the destruction of habitat for federally listed species, and direct impacts to paleontological resources. However, none of these impacts would be significant at the local scale or cumulatively because of the small scale of the project and design features that would reduce impacts to immeasurable levels. Air emissions would be below *de minimis*, soils would be preserved and restored to the extent possible following project implementation, and listed species habitat destruction would be minimized and compensated for in-kind. A paleontological resource assessment was conducted which outlines a mitigation plan to account for any adverse effects to paleontological resources. Leaving fossils buried does not allow an opportunity for scientific investigation. Mitigating for adverse effects to paleontological resources is a management practice that preserves resources and accommodates development.

2. The degree to which the selected alternative would affect public health or safety. The proposed project is comparable to other similar activities and projects already undertaken on BLM-administered lands within the Bakersfield Field Office and nationwide with no unusual health or

safety concerns. All operators are subject to the standards outlined in the California Occupation Safety and Health Plan, and the State must conduct inspections to enforce its standards and must operate occupational safety and health training and education programs. Also, operators must comply with federal safety regulations outlined in 43 CFR 3160 and the Onshore Oil and Gas Orders. Implementation of measures to meet these standards and regulations would minimize risks to public health and safety; therefore, any impacts to public health and safety are not considered significant.

3. Unique characteristics of the geographic area such as proximity to historic or cultural resources, parklands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas. No parklands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas would be adversely affected by the proposed development. The project area has been surveyed and analyzed for biological, historical and cultural resources. The project will not significantly affect biological, historical, or cultural resources. Biological resources would not be significantly affected because CREH would implement the USFWS-approved Project Specific Provisions to mitigate for impacts to threatened and endangered species. CREH would compensate for unavoidable impacts to listed species habitat by dedicating lands for the permanent conservation of in-kind habitat. No significant cultural resources were identified within the area of potential effect.

4. The degree to which the effects on the quality of the human environment are likely to be highly controversial. It is highly unlikely that any portion of the analyzed action would be controversial. Similar actions are commonplace in the area and draw little controversy. Oil development has occurred within the San Joaquin Valley region for over 100 years.

5. The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks. The proposed project is not unique or unusual. The BLM has experience implementing similar projects in similar areas and have found effects to be reasonably predictable. The effects to the human environment are fully analyzed in the EA. There are no predicted effects on the human environment which are considered to be highly uncertain or involve unique or unknown risks.

6. The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration. The proposed project does not set a precedent for future actions that may have significant effects. The proposed project is limited to the construction of an access road, power line, flow line, well pad, and drilling of Well 645H-12D. Any future proposals submitted within the project area would be considered independently and be subject to site specific NEPA analysis and documentation.

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. The project is consistent with the actions and impacts anticipated in the Bakersfield RMP. No significant cumulative effects have been identified. A complete disclosure of the effects of the proposed action and no action alternative is contained in the EA.

8. The degree to which the action may adversely affect districts, sites, highways, structures, or other objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

Cultural resources inventories had been previously conducted for the area of potential effect for the proposed project (BLM Cultural Resource Inventory Report #CA-160-C/V-886). No cultural resources or historic properties were identified within the project area. As a result, there will be no adverse effect to districts, sties, highways, structures, or other objects listed in or eligible for listing in the National Register of Historic Places and there will be no loss or destruction of significant scientific, cultural, or historical resources.

9. The degree to which the action may adversely affect an endangered or threatened species or its designated critical habitat under the Endangered Species Act of 1973. The proposed action would not have significant impacts to listed species or critical habitat. Implementation of measures prescribed in the Oil and Gas Programmatic Biological Opinion Project Specific Provisions and the Design Features would minimize the potential for unintended or undue impacts to all federally listed species. CREH's dedication of their private, conserved lands for the permanent conservation of listed species habitat will compensate for unavoidable impacts to listed species. There is no designated critical habitat in the project area.

10. Whether the action threatens to violate; Federal, State, or local law or requirements for the protection of the environment. This action would not violate federal, state, or local laws or requirements. The proposed action is fully consistent with the 2014 Bakersfield Resource Management Plan. The EA is in full compliance with the National Environmental Policy Act of 1969 and is consistent with the Federal Land Policy and Management Act of 1976, as amended. The proposed action would not result in undue or unnecessary resource degradation due to operator compliance with State and Federal regulations, the Lease Terms, the Design Features, spill prevention and control plans, and the Oil and Gas Programmatic Biological Opinion Project Specific Provisions. All approved resource impacts are necessary to respond to the APD submitted by CREH to drill Well 645H-12D on federal mineral lease CAS019343.

Prepared by:	/S/ Fernando Baños	06/20/2019
	Project Lead	Date

Approved by:	/S/ Kevin Coodey	06/20/2019
	Assistant Field Manager - Minerals	Date

**United States Department of the Interior
Bureau of Land Management
Bakersfield Field Office**

Decision Record

**California Resources Elk Hills
Buena Vista; Application for Permit to Drill Well 645H-12D
DOI-BLM-CA-C060-2019-0108-EA
Programmatic Project #68**

Introduction

Bureau of Land Management (BLM) proposes to approve one (1) Application for Permit to Drill (APD) submitted by California Resources Elk Hills, LLC (CREH) to drill Well 645H-12B on federal mineral lease CAS019343 located in Section 12, T32S, R24E, MDBM. The proposed project would occur on public lands containing BLM administered subsurface minerals within the Buena Vista Oilfield. Project implementation would include the installation of a power line 2,036 feet in length, and the installation of an above ground flow line spanning 22,787 feet suspended by sleepers placed every 25 feet, construction of the well pad, and the drilling of Well 645H-12D. The flow line route will be staked along existing roadways. Access for the proposed well pad location is by existing dirt roadways located on the west and east side of the proposed pad. The proposed well is in a high density existing field and no new permanent facilities are proposed at this time. Temporary facilities necessary for construction and drilling would be sited on the well pad and approved areas of disturbance. If the well is considered non-productive, it would be plugged and abandoned and the project site would be restored. No hydraulic fracturing of the well is proposed due to the characteristics of the reservoir and target formation. Estimated habitat disturbance for the project is **2.685 acres, requiring a total of 7.012 acres of compensation and 2.136 acres of replacement**, to meet conditions of the 2017 Programmatic Biological Opinion on Oil and Gas (08ESMF00-2016-F-0683).

The purpose of the proposed action is to provide CRPC with the authority to drill an exploratory well on federal mineral lease CAS019571. The need for the proposed action is to respond to the APD submitted by the applicant to conduct operations on public lands containing BLM administered subsurface minerals, under statutory authority of the *Federal Land Policy and Management Act of 1976*, the *Mineral Leasing Act of 1920*, as amended, and 43 CFR 3160.

Decision

I have reviewed the recommendations on the proposed action addressed in this environmental assessment. I find this action to be in conformance with applicable land use plans, that it effectively serves the public, and that it will not cause unnecessary or undue degradation. It is therefore my decision to approve the proposed action which is subject to the Design Features/Conditions of Approval identified for the proposed action in the Environmental Assessment.

Alternatives Considered but not Selected

A No Action Alternative that would deny the application was considered, but not selected.

Decision Rationale

The decision to approve the APD for Well 645H-12D best meets the purpose and need of BLM by authorizing CREH to drill a well on the federal mineral estate, pursuant to the *Federal Land Policy and Management Act of 1976*, the *Mineral Leasing Act of 1920*, as amended, and 43 CFR 3160. This decision also meets the Bakersfield RMP's decision and objective:

[MM-D-1.1.5] "Identify approximately 1,011,470 acres as open to fluid mineral leasing, subject to major constraints (both CSU- Protected Species and CSU- Sensitive Species)..."

[MM-O-1] "Facilitate reasonable, economical, and environmentally sound exploration and development of leasable minerals while minimizing impacts to other resources."

The proposed action is located on an existing lease that was issued in conformance with the above land use plan decisions. Issuance of the lease was not judicially challenged and the lease is considered a valid existing right with rights of development.

Consultation and Coordination

Public Involvement

BLM conducts external scoping on routine NOSs and APDs by posting notification that it is considering the NOS(s)/APD(s) on the E-Planning public website, which initiates the 30-day scoping period. In addition, APDs are published nationally at the time of acceptance at <https://reports.blm.gov>. The following NOS/APD was posted on May 15th, 2019 on the E-Planning website to solicit public comment or requests to review the Draft EA. No comments were received.

Biological Consultation

Formal consultation with the U.S. Fish and Wildlife Service was initiated in 2016. The Fish and Wildlife Service issued their "No jeopardy" biological opinion on December 22, 2017 (Programmatic Biological Opinion on Oil and Gas Activities on Bureau of Land Management Lands in the San Joaquin Valley, 08ESMF00-2016-F-0683). The 2017 Oil and Gas Programmatic Biological Opinion provides take coverage for authorization of individual projects occurring on surface and subsurface lands administered by the BLM in the San Joaquin Valley that disturb less than 10 acres of habitat or that encompass linear actions less than 10 miles long. This project occurs in Kern County and disturbs 2.136 acres, requiring a total of 7.012 acres of compensation and 2.136 acres of replacement, thus satisfying both requirements for coverage under the 2017 Oil and Gas Programmatic Biological Opinion.

Plan Consistency

Based on information in the EA, the project record, and recommendations from BLM specialists, I conclude that this decision is consistent with the Bakersfield RMP; the Endangered Species Act; the National Historic Preservation Act; the Paleontological Resources Preservation Act; other cultural resource management laws and regulations; Executive Order 12898 regarding Environmental Justice; and Executive Order 13212 regarding potential adverse impacts to energy development, production, supply and/or distribution.

Administrative Remedies

Administrative remedies may be available to those who believe they will be adversely affected by this decision. Appeals may be made to the Office of Hearings and Appeals, Office of the Secretary, U.S. Department of Interior, Board of Land Appeals (Board) in strict compliance with the regulations in 43

CFR Part 4. Notices of appeal must be filed in this office within 30 days after publication of this decision. If a notice of appeal does not include a statement of reasons, such statement must be filed with this office and the Board within 30 days after the notice of appeal is filed. The notice of appeal and any statement of reasons, written arguments, or briefs must also be served upon the Regional Solicitor:

U.S. Department of the Interior
Office of the Solicitor, Pacific Southwest Region
2800 Cottage Way, Room E-1712
Sacramento, CA 95825-1890

The effective date of this decision (and the date initiating the appeal period) will be the date of approval by the authorized officer.

/S/ Kevin Coodey
Assistant Field Manager, Minerals

06/24/2019
Date

**United States Department of the Interior
Bureau of Land Management
Bakersfield Field Office**

Environmental Assessment

**California Resources Elk Hills, LLC
Buena Vista; 2 Applications for Permit to Drill
DOI-BLM-CA-C060-2018-0130-EA
Programmatic Project #032**

Chapter 1. Purpose and Need

PURPOSE AND NEED

Bureau of Land Management (BLM) proposes to approve two (2) Applications for Permit to Drill (APDs) submitted by California Resources Elk Hills, LLC (CREH) to drill well 612-26B, on federal mineral lease CAS0019571, and well 634-26B on federal mineral lease CAS0019577 in Section 26, T31S, R23E, MDBM. The proposed project would occur on public lands containing BLM administered subsurface minerals within the Buena Vista Oilfield. Project implementation would include construction of 2 well pads, construction of 2 temporary impoundments (sumps), drilling Wells 612-26B, and 634-26B, and installation of associated facilities. These associated facilities include 2 3-inch flowlines, which will be placed on concrete sleepers along a staked route ranging from 3,961 feet to 7,489 feet in length to the existing 4D-26B LACT Setting, and a total of 11 power poles associated power lines. Additionally, in support of the two proposed APDs, this project would also include reclamation of 20 areas located in the same leases as the APDs, CAS0019571 and CAS0019577, in Section 26, T31S, R23E, MDBM. The total reclamation of these 20 areas will total 4.050 acres of habitat. Estimated habitat disturbance for the proposed project is **3.132 acres, requiring a total of 12.495 acres of compensation** to meet conditions of the 2017 Programmatic Biological Opinion on Oil and Gas (08ESMF00-2016-F-0683).

The purpose of the proposed action is to provide CREH with the authority to drill 2 new oil wells to expand production on federal mineral lease CAS0019571 & CAS0019577 and reclaim 20 areas of habitat in Section 26. The need for the proposed action is to respond to the APDs submitted by the applicant to conduct operations on public lands containing BLM administered subsurface minerals, under statutory authority of the *Federal Land Policy and Management Act of 1976*, the *Mineral Leasing Act of 1920*, as amended, and 43 CFR 3160.

This Environmental Assessment (EA) has been prepared in compliance with the National Environmental Policy Act (NEPA) and other relevant federal and state laws and regulations. The purpose of this document is to disclose and analyze the environmental consequences that are anticipated from the construction of 2 well pads, construction of 2 temporary impoundments (sumps), drilling Wells 612-26B, and 634-26B, installation of associated facilities, including 2 3-inch flowlines and a total of 11 power poles, and reclamation of 20 areas with approximately

4.050 acres of habitat in Section 26. BLM will decide whether to approve the 2 APDs submitted by CREH and under what conditions.

CONFORMANCE WITH BLM LAND USE PLANS

The proposed action has been reviewed for conformance with the Bakersfield Resource Management Plan approved on December 22, 2014; it has been determined that the proposed action conforms with the land use plan, terms, and conditions as required by 43 CFR 1610.5. The proposed action and modifications were specifically provided for in the following land use plan objective and decision:

[MM-O-1] “Facilitate reasonable, economical, and environmentally sound exploration and development of leasable minerals while minimizing impacts to other resources.”

[AC-D-13] “Designate 11,330 acres of public lands and 4,162 acres of federal mineral estate; within a boundary of 69,624 acres (combining the existing Lokern ACEC with the expansion to include the Buena Vista Hills and Valley), as the Lokern-Buena Vista ACEC administered with the following special management:

- (a) Identify as open for fluid mineral leasing, subject to major constraints (CSU- Protected Species and CSU-Sensitive Species stipulations).”

SCOPING AND ISSUES

Internal scoping was conducted among BLM Bakersfield Field Office staff, including Natural Resource Specialist Fernando Baños, and Archaeologist and Paleontological Resource Specialist Tamara Whitley.

BLM conducts external scoping on routine NOSs and APDs by posting notification that it is considering the NOS(s)/APD(s) on the E-Planning public website, which initiates the 30-day scoping period. In addition, APDs are published nationally at the time of acceptance at <https://reports.blm.gov>. The following NOS(s)/APD(s) were posted on May 29, 2018 on the E-Planning website to solicit public comment or requests to review the Draft EA; no comments were received.

The issues identified during internal scoping include:

1. How would the activities under each alternative contribute to emissions of criteria pollutants and greenhouse gases, and would these impacts to air quality and climate change, if any, be significant?
2. How would the activities under each alternative contribute to potential impacts to Special Status Species, and would these impacts, if any, be significant?
3. How would the activities under each alternative influence rates of water and wind erosion to soils, and would these impacts, if any, be significant?

4. How are the activities under each alternative linked to seismicity, and would these impacts, if any, be significant?
5. How would the activities under each alternative contribute to degradation of surface and groundwater, and would these impacts, if any, be significant?
6. How would the activities under each alternative contribute to degradation of cultural resources, Native American values, and paleontological resources, and would these impacts, if any, be significant?

These issues will be analyzed to make a reasoned choice among the alternatives.

RELATIONSHIP TO STATUTES, REGULATIONS AND OTHER PLANS

Oil and Gas Laws and Regulations

The BLM manages lands that contain a number of extractable minerals including oil and gas. These minerals are managed in accordance with the *Mineral Leasing Act* of 1920, as amended; the *Mining and Minerals Policy Act* of 1970; the *Federal Onshore Oil and Gas Leasing Reform Act* of 1987; 43 CFR, Onshore Orders 1-8; the *Energy Policy Act* of 2005; and other laws, regulations, orders, and also in accordance with all applicable state, county, and local laws and ordinances. BLM requires existing lessees to strictly adhere to all laws, regulations, and policies that govern oil and gas leases, while at the same time recognizing that existing leases grant the lessee certain rights. No additional requirements can be placed on an existing lessee that conflict with the rights already granted to the lessee.

Onshore Order No. 1 identifies the requirements necessary for approving proposed oil and gas exploration, development, and servicing wells on all Federal and Indian oil and gas leases. This includes all components required for the management of fluid minerals including: completed Form 3160-3, well plat, drilling plan, surface use plan, bonding, operator certificate, onsite inspection, processing, reclamation, and Sundries. Onshore Order No.1 also identifies processing timelines and valid period of approvals. Onshore Order No. 2 provides requirements and standards for drilling and abandonment. Onshore Order No. 3, replaced by 43 CFR 3173, establishes standards to ensure that oil and gas are properly and securely handled to prevent loss and theft, and to enable accurate measurement and production accountability. Onshore Order No. 4, replaced by 43 CFR 3174, establishes minimum standards for the accurate measurement of all oil. Onshore Order No. 5, replaced by 43 CFR 3175, establishes minimum standards for the accurate measurement of gas. Onshore Order No. 6 provides the requirements and standards for conducting oil and gas operations in an environment known to or expected to contain hydrogen sulfide (H₂S) gas. Last, Onshore Order No. 7 provides the methods and approvals necessary to dispose of produced water associated with oil and gas operations.

Endangered Species Act

The Endangered Species Act of 1973 (ESA) requires federal agencies to complete formal consultation with the United States Fish and Wildlife Service (FWS) for any action that “may affect” federally listed species or critical habitat. The ESA also requires federal agencies to use their authorities to carry out programs for the conservation of endangered and threatened species.

Clean Air Act

The San Joaquin Valley Unified Air Pollution Control District has state air quality jurisdiction over the project area. Section 176(c) of the Clean Air Act (CAA), as amended (42 U.S.C. 7401 et seq.) and regulations under 40 CFR part 93, subpart W, with respect to conformity of general Federal actions to the applicable State Implementation Plan (SIP) apply to projects within nonattainment and maintenance areas. Under those authorities “no department, agency or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license or permit, or approve any activity which does not conform to an applicable implementation plan.” Under CAA 176(c) and 40 CFR part 93 subpart W, a Federal agency must make a determination that a Federal action conforms to the applicable implementation plan before the action is taken.

National Historic Preservation Act of 1966, as amended

Section 106 of the National Historic Preservation Act (NHPA) requires agencies to make a reasonable and good faith effort to identify historic properties that may be affected by an agency’s undertakings and take those effects into account in making decisions. The BLM process for implementing this NHPA requirement is set forth in the *State Protocol Agreement Among the California State Director of the Bureau of Land Management and the California State Preservation Officer and the Nevada State Historic Preservation Officer (2014)*.

Paleontological Resources Preservation Act (PRPA)

This Act was passed as part of the Omnibus Public Lands Management Act of 2009, and requires interior agencies as well as the Forest Service to manage and protect paleontological resources on Federal land. This includes developing plans for the inventory, monitoring, and scientific and educational use of paleontological resources. The Act also includes regulations on the qualifications required for obtaining a permit to collect and study paleontological resources on Federal land.

Clean Water Act

The Clean Water Act of 1977 establishes authority to regulate any action where pollutants may be discharged into waters of the United States. Section 303 of the federal Clean Water Act requires states to adopt water quality standards that “consist of the designated uses of the navigable waters involved and the water quality criteria for such waters based upon such uses.” In California, these water quality standards and the administrative policies and procedures for protecting state waters are disclosed in regional water quality control board basin plans. Hence, California’s basin plans serve as regulatory references for meeting both State and federal requirements for water quality control (40 CFR Parts 130 and 131). These basin plans establish standards for ground waters in addition to surface waters, unlike the federal program.

The Clean Water Act also established the National Pollutant Discharge Elimination System (NPDES) permit program, regulating point source discharges of pollutants into waters of the United States. Section 402 of the Clean Water Act provides that storm water discharges associated with industrial activity and construction must be authorized under a NPDES permit.

Clearing, grading, and excavation projects that disturb more than one acre are required to obtain a NPDES storm water discharge permit under EPA regulations, though certain regulations such as 40 CFR parts 122.26 (a)(2), (e)(8), and (c)(1)(iii) codify exemptions for oil and gas operations. In California, oil and gas operations are not required to obtain a discharge permit (Construction General Permit Order 2009-0009-DWQ) under the authority of the Clean Water Act and the Code of Federal Regulations. This does not exempt oil and gas operations from section 404 of the Clean Water Act, which establishes the authority to issue permits for dredged or fill material.

In California, oil and gas operators are required to obtain a permit for waste discharges to land (Water Quality Order No. 2003-0003-DWQ). The State may exempt State Waste Discharge Requirements for drilling mud and cuttings from well drilling operations, provided that such discharges are to on-site sumps, do not contain halogenated solvents, and at the end of drilling operations the discharger either removes all wastes from the sump or removes all free liquid from the sump and covers residual solid and semisolid wastes, provided that representative sampling of the sump contents after liquid removal shows residual solid wastes to be nonhazardous (California Code of Regulations, Title 27 section 20090).

Also, the State may exempt specific aquifers from particular beneficial use designations if the aquifer meets certain criteria, such as high TDS, contamination, low yield, and regulation as a geothermal energy source or exemption for the purpose of underground fluid injection pursuant to 40 CFR, Section 146.4 (CRWQCB – CVR, 2004).

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) of 1974 regulates the nation's public drinking water supply to protect public health. SDWA authorizes the U.S. EPA to set national health-based standards for drinking water to protect against both naturally-occurring and man-made contaminants that may be found in drinking water.

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) of 1976 establishes a regulatory structure for the management and disposal of solid and hazardous wastes. Solid wastes consist of any discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities. Solid wastes include both hazardous and nonhazardous waste. A waste may be considered hazardous if it is ignitable, corrosive, reactive, or contains certain amounts of toxic chemicals. Subtitle C of the RCRA creates a cradle-to-grave management system for hazardous waste, governing the generation, transportation, treatment, storage, and disposal of hazardous wastes. Subtitle D regulates the management of nonhazardous solid waste, establishing minimum federal technical standards and guidelines for state solid waste plans in order to promote environmentally sound management of solid waste.

Oil and gas exploration and production (E&P) wastes that are intrinsically derived from primary field operations are exempt from Subtitle C hazardous waste regulations, though Subtitle D, other federal regulations, and state regulations still apply. Exempt E&P wastes include any produced fluids or waste otherwise generated by contact with the oil and gas production stream

during the removal of produced water or other contaminants from the product. Some specific E&P wastes designated as exempt include produced water, drilling fluids, drill cuttings, rig-wash, work-over wastes, and well completion, treatment, and stimulation fluids. Examples of non-exempt wastes include unused fracturing fluids or acids, waste solvents, used equipment lubricating oils, and caustic or acid cleaners.

Chapter 2. Proposed Action and Alternatives

ALTERNATIVE 1: PROPOSED ACTION

BLM proposes to approve 2 APDs submitted by CREH for the drilling of well 612-26B, on federal mineral lease CAS0019571 and well 634-26B on federal mineral lease CAS0019577 in Section 26, T31S, R23E, MDBM. The proposed project would occur on public lands containing BLM administered subsurface minerals within the Buena Vista Oilfield. Project implementation would include construction of 2 well pads, construction of 2 temporary impoundments (sumps), drilling Wells 612-26B, and 634-26B, installation of associated facilities including 2 3-inch flowlines ranging from 3,961 feet to 7,489 feet in length and 11 power poles, and reclamation of approximately 4.050 acres of habitat in Section 26. All associated flowlines would tie into the existing 4D-26B LACT setting. Estimated habitat disturbance for the proposed project is 3.132 acres.

The proposed well pad dimensions for Well 612-26B measure approximately 409 feet by 187 feet. Temporary and permanent disturbance would be necessary to construct the well pad location. In addition, temporary and permanent disturbance would be required for the installation of a 3-inch by 7,489-foot flowline that would transport production from the well to the 4D-26B LACT setting. Six new power poles and associated power lines would be installed, requiring temporary disturbance from off-road travel.

The proposed well pad dimensions for Well 634-26B measure approximately 342 feet by 278 feet. Temporary and permanent disturbance would be necessary to construct the well pad location. In addition, temporary and permanent disturbance would be required for the installation of a 3-inch by 3,961-foot flowline that would transport production from the well to the 4D-26B LACT setting. Five new power poles and associated power lines would be installed, requiring temporary disturbance from off-road travel.

Approximately 6,857.14 barrels (288,000 gallons) of municipal fresh water would be used for drilling and dust abatement for each well; all water would be obtained from the West Kern Water District water loading point located in Section 13, T32S, R23E, MDBM and trucked to the project location.

Non-hazardous, water-based mud would be used in drilling operations. All drilling water, cuttings, and drilling fluids would be collected in a sump located on each well pad location and disposed of onsite. CREH received a Notice of Applicability from the Central Valley Regional Water Quality Control Board pursuant to Water Quality Order 2003-0003-DWQ to discharge drilling muds and boring wastes in the proposed sumps.

All produced fluids associated with the proposed wells would be treated at the Buena Vista Hills reclaimed water system, which is owned and operated by CREH and located in Section 36, T31S, R23E, MDBM. Processing could include de-oiling, biocide treatment, and filtration. The reclaimed water would be injected into Class II wells in accordance with CREH's underground injection permits.

Drilling equipment and materials would be placed on the proposed well pad locations and the pads would be cleared of unnecessary items following well completion. CREH is restricted to use of existing roads and approved areas of disturbance during and following project implementation.

CREH has stated that there are no plans to conduct well stimulation activities regulated by California Senate Bill No. 4 (hydraulic fracturing, matrix or fracture acidization) on the proposed wells. CREH justified this by stating that the reservoir characteristics and geologic rock properties of both the Monterey (Antelope) Shale and Etchegoin formations have sufficient naturally occurring permeability to make oil/gas production more economic without any well stimulation treatment activities.

CREH proposes to reclaim 20 locations that are no longer needed for production activities on federal mineral leases CAS019571 and CAS019577. **The Reclamation Plan is included as Attachment 3. Reclamation activities shall be initiated prior to ground disturbance associated with the 2 APDs.** Reclamation of these areas will consist of ripping the topsoil to a depth of three to six inches. If any stockpiled topsoil is available from the existing nearby locations in 26B, CREH will use it for reclamation activities. Use of other borrow material requires prior BLM approval. CREH will then hand broadcast native seed, using a BLM approved weed-free native seed mix comprised of *Atriplex spp.* prior to the rainy season. The reclaimed areas will be fenced off and reclamation signs installed. Additionally, 11 of the 20 areas are associated with the BLM Travel Management Routes. BLM has done careful revision of these areas and has determined that they do not affect any major routes of the Travel Management Routes. CREH selected the proposed 20 reclamation areas, including those associated with the existing BLM Travel Management Routes in order to comply with the Reserve Area habitat disturbance restrictions. CREH will allocate resources permanently to reclaim the proposed 20 areas. The total reclamation of these 20 areas will total 4.050 acres of habitat

Additional Comments:

No Right-Of-Ways are impacted or associated with these projects.

No grazing allotment is being use in the area of the project.

Design Features/Additional Conditions of Approval (COAs) for Surface

The following Design Features and conditions of approval are part of the proposed action:

CREH shall comply with all applicable Federal, Tribal, State, and local laws during project implementation.

Biological Resources

This project is covered under the 2017 Oil and Gas Programmatic Biological Opinion (08ESMF00-2016-F-0683) because it falls within the requirements for projects analyzed and authorized under that biological opinion. The 2017 Oil and Gas Programmatic Biological Opinion provides take coverage for authorization of individual projects occurring on surface and subsurface lands administered by the BLM in Kings and Kern Counties that disturb less than 10 acres of habitat or that encompass linear actions less than 10 miles long. This project occurs in Kern County and disturbs 3.132 acres of habitat, thus satisfying both requirements for coverage under the 2017 Oil and Gas Programmatic Biological Opinion. Compliance with the Project Specific Provisions (**Attachment 1**) of this Opinion is required. **A preliminary estimate of compensation is 12.495 compensation acres (3.132 permanent acres compensated at 3:1 = 9.345 + 0.017 temporary acres compensated at 1.1:1 = 0.018 + 3.115 replacement acres).**

In addition, CREH shall comply with all of the “Avoidance & Mitigation Actions” recommended by consulting biologist Kimberly Fiehler (West Kern Environmental Consulting, LLC) in her May 16, 2018, Sensitive Species Review Forms:

1. A biological monitor will be present during initial ground disturbance and during reclamation activities. A biological monitor will be on-call and notified (661) 448-3131 if listed species are observed in the project area subsequent to initial ground disturbance.
2. No more than 14 days prior to construction, a qualified biologist shall conduct a final pre-construction survey of the project area to ensure that no special-status species have recently occupied the project site.
3. Should a potential kit fox den be observed during the 14-day pre-construction survey, CREH will implement measures based on guidelines in the USFWS Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance (USFWS 2011).
4. A Threatened and Endangered Species training session will be given to all personnel prior to project implementation.
5. Project site boundaries shall be clearly delineated by stakes, flagging and/or rope to minimize inadvertent degradation or loss of adjacent habitat during well pad and pipeline installation activities.
6. All construction equipment, staging areas, material and personnel shall be restricted to previously disturbed areas (roads, well pads, and other non-habitat areas).
7. All construction pipes, culverts, or similar structures stored at the construction site overnight having a diameter of four (4) inches or greater shall be inspected thoroughly for wildlife species before being buried, capped, or otherwise used or moved in any way. Pipes laid in trenches overnight shall be capped. If during construction a wildlife species is discovered inside a pipe, that section of the pipe

- shall not be moved or, if necessary, moved only once to remove it from the path of construction activity, until the wildlife species has escaped.
8. A speed limit of 10 mph (MAX) will be enforced to avoid incidental take of wildlife along roadways.
 9. All excavated steep-walled holes or trenches in excess of three feet in depth left open for more than one (1) work day shall be provided with one or more escape ramps constructed of earth fill or other material to prevent entrapment of endangered species or other animals. Ramps shall be located at no greater than 1,000-foot intervals (for pipelines, etc.) and at not less than 45-degree angles. Trenches shall be inspected for entrapped wildlife each morning prior to onset of construction activities and immediately prior to the end of each working day. Before such holes or trenches are filled they shall be inspected thoroughly for entrapped animals. Any animals discovered shall be allowed to escape voluntarily without harassment before construction activities resume, or removed from the trench or hole by a qualified biologist and allowed to escape unimpeded.
 10. Prior to moving, project personnel shall inspect areas under vehicles and equipment, in and around stockpile areas, and any other areas where listed species may seek refuge.
 11. All food related trash such as wrappers, cans, bottles, and food scraps shall be disposed of into closed containers and be removed daily from the site.
 12. Feeding of wildlife is strictly prohibited.
 13. CREH staff and/or its contractors should designate a specific individual as a contact representative between CREH and all applicable federal, state, and local agencies to oversee compliance with these avoidance mitigation measures.
 14. Firearms are prohibited on site.
 15. Pets are prohibited on site.
 16. Follow BLM General Guidelines for Conserving Habitat and Minimizing Project Impacts.

Cultural Resources

The operator shall immediately notify the Bakersfield BLM Field Manager and Field Office Archaeologist (661-391-6000) of any cultural resources discovered as a result of operations under this authorization. The operator shall suspend all activities in the vicinity of such a discovery and shall protect the discovery from damage or looting until the discovery has been assessed and appropriate measures for avoidance or mitigation can be implemented. Work shall not proceed without written authorization from the BLM.

Paleontological Resources

The following sections provide a detailed paleontological mitigation plan (PMP) recommended for future development on BLM managed lands within the Buena Vista Hills Master Development Plan (MDP) (for private surface split estate or fee lands, paleontological resource compliance is up to the discretion of the surface owner). This mitigation program has been divided into sections outlining steps to be taken prior to the commencement of construction (e.g., contracting a qualified Project Paleontologist, attendance of Project Paleontologist at pre-construction meetings, paleontological resource training provided for earth excavation

personnel), during construction (paleontological monitoring of excavations into Pleistocene older alluvial deposits or the Tulare Formation, salvage of discovered fossils), and post-construction (preparation and curation of any salvaged fossils, completion of final paleontological mitigation report). All steps taken in the mitigation program are in accordance with industry standards (e.g., SVP, 2010; Murphey et al., 2014). Adopting the recommendations outlined in this PMP will reduce impacts to paleontological resources from ground disturbance during construction to less than significant levels.

PRECONSTRUCTION

Prior to commencement of construction activities, some or all of the following actions will be necessary.

RETAINMENT OF QUALIFIED PROJECT PALEONTOLOGIST

Prior to the start of construction, a qualified Project Paleontologist (as defined below) shall be retained and approved by the lead agency to monitor ground disturbance activities. The Project Paleontologist will oversee the Paleontological Mitigation Program, including serving as supervisor to any retained qualified paleontological monitors (as defined below).

QUALIFICATIONS

The qualified Project Paleontologist will have a Master's Degree or Ph.D. in paleontology, and will have proven knowledge of local paleontology and geology and professional experience with paleontological procedures and techniques. In turn, the qualified paleontological monitor(s) will have a BA or BS in Geology or Paleontology and a minimum of 1 year of monitoring experience in local sedimentary rocks. Other experience may be substituted on approval from the BLM and/or County of Kern.

DESIGNATION OF REPOSITORY

For paleontological resources recovered from BLM managed lands, a professional repository approved by the BLM should be contracted prior the start of construction, to curate and store any discovered fossils. Such an institution should be a recognized paleontological specimen repository with a permanent curator, such as an AAM-accredited museum or university (e.g., Natural History Museum of Los Angeles County, San Diego Natural History Museum, or University of California Museum of Paleontology). The repository shall be capable of storing fossils in a facility with adequate security against theft, loss, damage, fire, pests, and adverse climate conditions.

The designated repository will understand that though they will assume the professional and financial responsibilities associated with curation and storage in perpetuity, ownership of the fossils will be retained by the BLM. A curation agreement outlining this relationship, as well as funds required for initial curation and storage needs, shall be submitted to the Bakersfield Field Office for approval prior to beginning any work. Reasonable costs may include necessary curatorial supplies (e.g., archival specimen trays, glass vials, foam), as well as a one-time fee for initial specimen storage, which is generally calculated based on the actual or prorated purchase price of steel drawers and cabinets, and a prorated cubic foot volume charge for the collection room.

For paleontological resources recovered from private surface lands for projects conducted on split-estate, fee land, or connected action projects, the fossils are the property of the surface land owner. In such instances, the surface land owner is strongly encouraged to donate fossils to a professional repository.

ATTENDANCE AT PRE-CONSTRUCTION MEETING

The Project Paleontologist shall attend the pre-construction meeting to consult with the grading and excavation contractors concerning excavation schedules, paleontological field techniques, and safety issues.

WORKER ENVIRONMENTAL AWARENESS PROGRAM (WEAP)

Prior to the start of construction, the Project Paleontologist shall present a Worker's Environmental Awareness training program on paleontological resources to insure that all construction personnel understand paleontological monitoring requirements, the roles and responsibilities of paleontological monitors, and the appropriate action to be taken in the event of a discovery of paleontological resources. The penalties associated with the unauthorized collection of or intentional disturbance of any paleontological resources, as well as the penalties for noncompliance with paleontological mitigation requirements shall be clearly communicated. Training shall include a definition of paleontological resources and an overview of potential resources that could be encountered during ground disturbing activities, which will help to facilitate worker recognition, avoidance, and immediate notification to the Project Paleontologist, or paleontological monitor. All construction personnel will be required to attend a WEAP workshop.

SUBMISSION OF LIST OF MONITORS AND PALEONTOLOGICAL MONITORING EXHIBIT

Prior to the start of earthwork, a Paleontological Monitoring Exhibit should be submitted to the BLM Bakersfield Field Office by the contracted Project Paleontologist. The monitoring exhibit shall highlight the areas to be monitored on available construction/grading plans. The names of any qualified paleontological monitors that may work on the Project Area shall also be submitted to the Bakersfield Field Office for approval prior to beginning any earthwork.

RESEARCH DESIGN

There are specific research themes associated with the sedimentary rock units present within a given project, which will direct the types of data collection made during paleontological mitigation. These research themes would be applied during the implementation of a research design/discovery phase, as appropriate. Research themes related to Pleistocene-aged older alluvial deposits and the Tulare Formation include:

- Pleistocene land mammal diversity including "Ice-Age" megafauna
- Pleistocene non-marine paleoenvironments of the southern San Joaquin Valley
- Distribution and stratigraphy of marine and nonmarine deposits of the Tulare Formation
- Paleoecological structure of Pleistocene land mammal assemblages
- Pleistocene land mammal and aquatic vertebrate evolution and systematics
- Preservation of fossils in older alluvial deposits

DURING CONSTRUCTION

Commencement of construction related excavation activities marks the time when potential impacts to paleontological resources will begin. To mitigate these potential impacts, some or all of the following actions are required:

EXCAVATION MONITORING: DUTIES AND AREAS TO BE MONITORED

A qualified paleontological monitor(s) working under the direction of the Project Paleontologist shall be present full-time during all relevant ground disturbance activities (i.e., grading for new well pads and excavation of well sumps) associated with the well pad preparation phase of construction. Paleontological monitoring of well site drilling is not required.

It is the Construction Manager's responsibility to keep the Project Paleontologist and paleontological monitor(s) up-to-date with current earthwork plans and any construction or scheduling changes. The monitor(s) will coordinate with Construction Management to determine the timing for monitoring in the identified areas of concern. It will be the paleontological monitor's responsibility to maintain communication and coordination with the construction team. Paleontological monitoring may be reduced (e.g., weekly spot-checking), at the discretion of the Project Paleontologist, based on the conditions in the field (e.g., only weathered deposits are impacted by construction).

A paleontological monitor will observe and inspect any temporarily exposed outcrops (e.g., graded pad surfaces, cutslopes, sump sidewalls) for paleontological remains. Spoils produced from excavation activities (e.g., trenching, augering) may also be inspected. Ideally, inspection involves the examination of every newly exposed surface, but operationally this is often impossible. The pace and quantity of equipment in the cut may determine how often and where paleontological monitors can inspect. When active excavations are too dangerous to enter because of a narrow cut, short haul, and/or heavy equipment traffic, monitoring may be conducted from an elevated vantage point.

It is important to emphasize that paleontological monitors should avoid interference with, or delay of, construction operations.

DATA RECOVERY (STRATIGRAPHY)

Recording of stratigraphic data will be an on-going aspect of excavation monitoring to provide context for any eventual fossil discoveries, and to gain a greater understanding of the stratigraphy and geology of Kern County and the southern San Joaquin Valley. Outcrops exposed in active cuts and finished slopes should be examined and observed geologic features recorded on grading plans and field notes. The goal of this work is to delimit the nature of fossiliferous sedimentary rock units in the Project Area, determine their areal distribution and depositional contacts, and record any evidence of structural deformation that may affect determination of the stratigraphic position of recovered fossils. Standard geologic and stratigraphic data collected include lithologic descriptions (color, sorting, texture, structures, and grain size), stratigraphic relationships (bedding type, thickness, and contacts), and topographic position. Measurement of stratigraphic sections will be routinely done and areas containing exposures of fossiliferous sedimentary deposits will be studied in detail and fossil localities recorded on measured stratigraphic sections.

SAFETY PROCEDURES

Safety of paleontological field personnel is of paramount concern during the construction phase. Safety procedures to be followed by field personnel will include wearing appropriate clothing (e.g., high-visibility safety vests, hard hats, steel-toed boots), carrying large handheld orange flags, securing equipment operators' attention before entering an active cut, notifying grading personnel before beginning a salvage excavation, marking fossil discovery sites with surveyor's flagging, and using caution while driving on haul roads. Attendance at the preconstruction meeting and daily or weekly tailgate meetings are important for discussing mutual safety issues between paleontological field personnel and construction personnel.

PROCEDURES FOR PALEONTOLOGICAL DISCOVERIES

The goal of paleontological monitoring is to observe excavation activities and to be onsite in the event that fossils are unearthed by excavation activities. When fossils are discovered the procedures outlined below will be followed. Recovery methods, as well as time needed for fossil recovery, may vary to some degree depending on the types of fossils discovered (e.g., macrofossils, microvertebrate fossils, or plant fossils) and the nature of the enclosing sedimentary deposits.

DISCOVERY PROCESS AND WORK STOPPAGE

In the event of a fossil discovery, the qualified paleontological monitor may immediately initiate recovery or choose to temporarily stop construction or grading work at the discovery location to consult with the Project Paleontologist. When work is stopped, the Project Paleontologist will notify the project superintendent and appropriate agency representatives (e.g., BLM and Kern County staff members). The monitor, under direction of the Project Paleontologist, will divert, direct, or temporarily halt ground disturbing activities in the area of discovery to allow for preliminary evaluation of potentially significant paleontological resources and to determine if additional measures (i.e., collection and curation) are required.

DETERMINATION OF SIGNIFICANCE

The significance of the discovered paleontological resources will be determined by the Project Paleontologist. For significant paleontological resources, a data recovery program will be initiated that will follow the general steps outlined below with some refinements based on the type and nature of the specific discovery.

The data recovery program will largely be driven by the research themes (see Section A1.6) and will incorporate appropriate field methods for data collection to answer specific questions, as well as develop plans for the preparation, curation, and storage of recovered fossils, and data collection and post-collection phases of fossil recovery.

MACROFOSSIL RECOVERY

Many fossil specimens discovered during excavation monitoring are readily visible to the naked eye and large enough to be easily recognized and removed. Upon discovery of such macrofossils, the qualified paleontological monitor will temporarily flag the discovery site for avoidance and evaluation as described above. Actual recovery of unearthed macrofossils can involve several techniques including "pluck-and-run," hand quarrying, plaster-jacketing, and/or large-scale quarrying. The "pluck-and-run" technique will be used when equipment activity in the vicinity of the discovery area is heavy and immediate action is required to remove an isolated specimen so

as not to slow the progress of construction operations. “Pluck-and-run” recovery involves exploratory probing around a partially exposed fossil specimen to determine its dimensions, the application of consolidants (Acryloid, Butvar, or Vinac) to stabilize any damaged or weakened areas of the fossil, and removal of the specimen in a block of matrix. Hand quarrying typically consists of site specific “mining” of fossil-rich sedimentary rock layers without establishment of a geographic grid framework. Fragile fossils are stabilized as described above. Hand quarrying and the “pluck-and-run” techniques can typically be carried out in several minutes, to an hour, thus minimizing the duration of any work stoppage.

Particularly large and/or articulated vertebrate fossils require special handling because of their size and/or fragility and are typically recovered in a process called “plaster-jacketing.” The process begins by isolating a partially exposed specimen from the temporary exposure in a matrix-supported sedimentary pedestal. The pedestal is then slightly undercut at its base to form an overhanging lip and a layer of damp newsprint or tissue paper is placed on the upper surface of the block. Strips of burlap fabric are then soaked in a mixture of Plaster-of-Paris and laid across the matrix block to dry. Depending upon the volume of the block, one, two, or more layers of plaster-soaked burlap strips are formed on the block. Especially large blocks (over two feet in length) are reinforced with wooden or metal splints. Once the plaster hardens, the supporting pedestal is undercut and the block turned over. Hand tools are then used to remove any excess matrix from the bottom of the block and a plaster and burlap cap constructed on the inverted bottom of the block using the same methods described above. When all layers of plaster are dry and hard, the completed plaster “jacket” is then labeled with a field number and north arrow and removed from the field. Depending on the size, complexity, and number of plaster jackets, recovery may require several hours to several days to complete. The discovery of a concentration of large vertebrate fossils (e.g., a bone bed) would require more time (e.g., several days) for recovery.

MICRO-VERTEBRATE FOSSIL RECOVERY

Many significant fossils often are too small to be readily visible in the field (e.g., small mammal teeth, fish otoliths, lizard limb bones), but are nonetheless significant and worthy of attention because of their potential to provide information concerning paleoenvironments, paleoclimates, and geologic age. If sedimentary horizons are observed that either contain micro-vertebrate fossils, or appear to have high potential to contain such fossils, these horizons shall be sampled by collecting bulk quantities of sedimentary matrix. These bulk matrix samples then undergo laboratory processing in order to isolate the microfossils. Specific procedures for recovery of micro-vertebrates are described below. It should be emphasized that once a bulk matrix sample has been collected and removed from the Project Area, construction activities can resume.

For micro-vertebrate fossils (e.g., small mammal, bird, reptile, amphibian, or fish remains) guidelines developed by the Society of Vertebrate Paleontology (SVP, 2010) define an adequate sample as comprising “...4.0 cubic meters (6,000 lbs. or 2,500 kg) of matrix for each site, horizon or paleosol.” However, the uniqueness of the micro-vertebrate fossils recovered may justify screen washing even larger amounts... as determined by the Project Paleontologist.” It is understood that conditions in the field may be such that recovery of 6,000 lbs. matrix samples is not possible, and a smaller matrix sample may be warranted at the discretion of the Project Paleontologist. Ideally, micro-vertebrate fossil sites will occur within a layered sequence of strata from which several successive strata may yield individual micro-vertebrate fossil horizons. A maximum of one bulk matrix sample per fossil horizon shall be collected. This sample shall be

assumed to contain a representative assemblage of fossils preserved in that fossil horizon. For each sample collected, it is recommended that a 200 lb. (90 kg) subsample be initially processed to determine the fossil productivity of the larger sample. Generally, if five or more complete mammal teeth are recovered from the subsample, the remainder of the sample should be processed. If fewer teeth are recovered, processing should cease.

PALEOBOTANICAL FOSSIL RECOVERY

Paleobotanical specimens typically occur in fine-grained, laminated strata (e.g., shale) and will require special recovery techniques. When fossil plant sites are discovered, they initially should be evaluated in terms of fossil preservation, specimen abundance, and taxonomic diversity to determine the level of sampling. For sites with well-preserved and relatively complete leaves, an adequate sample would aim to recover at least 20 specimens of each recognized leaf type (species or morphotypes). Large blocks (>2 feet in diameter) of sedimentary rock typically can be hand quarried from the temporary outcrop and then split along bedding planes to reveal compressed fossil plant material (e.g., leaves, stems, and flowers). Individual slabs are then wrapped in tissue paper or newsprint to minimize destruction of the fossils during desiccation. In some cases, specimens that are delaminating or flaking may need to be coated with special consolidants (e.g., Vinac or Butvar). It should be emphasized that once an adequate sample has been collected and removed from a paleobotanical discovery site, construction activities can resume.

TIME REQUIRED FOR FOSSIL RECOVERY

As discussed above in Section A2.2.4, the vast majority of fossil salvages can be accomplished relatively quickly, requiring a few minutes to a few hours of focused recovery work to complete. However, recovery of large vertebrate fossils or concentrations of vertebrate fossils may require several days to weeks to complete. In many cases, fossil recovery may be expedited through the temporary use of one-site heavy equipment to remove sedimentary overburden, collect bulk matrix samples, and/or lift plaster jackets. It should also be emphasized that avoiding or minimizing construction delays can be achieved by diverting earthwork operations to other areas of the project area while fossil recovery work is under way.

POST CONSTRUCTION

In the event fossils are discovered and salvaged, the fossils will be prepared, identified, catalogued, and stored in a recognized professional repository and a Final Paleontological Mitigation report written that summarizes the results of pre-construction, during-construction, and post-construction activities (if applicable) and findings. If no fossils are salvaged over the course of monitoring, an abbreviated Final Paleontological Mitigation report shall be prepared.

FOSSIL PREPARATION

Fossil remains collected during the monitoring and salvage portion of the project will be cleaned, repaired, and/or screenwashed as described below. Fossil preparation may be conducted at the laboratory of the contracted Project Paleontologist or the designated repository, and shall follow the standards of the designated repository. Prior to commencement of work, an estimate of fossil preparation costs should be developed based on number and type of specimens, preparation labor rates, preparation supply needs.

SPECIMEN PREPARATION

Preparation of fossil specimens will involve removal of extraneous and concealing sedimentary matrix from specimens using various mechanical methods including pneumatic air scribes, micro-sandblasters, and simple hand tools (hammers, chisels, X-acto knives, brushes, dental picks, and pin vises). Fossil preparation will also involve consolidation of weak or porous specimens by the application of specialized media including polyvinyl acetate resins (e.g., Vinac), acrylic resins (e.g., Acryloid), or polyvinyl butyral resins (e.g., Butvar). Repair of broken/damaged specimens will require the use of various adhesives including cyanoacrylate glues (e.g., Zap) polyvinyl acetate emulsions (e.g., carpenter's glue), and polyvinyl butyral resins (e.g., Butvar).

SCREENWASHING

Recovery of micro-vertebrate fossils will be accomplished by screenwashing bulk samples of fossil-bearing sedimentary matrix. The process begins by breaking large blocks into 2-3 cm cubes to facilitate air-drying of the matrix. Once dry, the matrix is placed into water-filled 5 gallon plastic buckets to soak for no less than 15 minutes with stirring. The slurry is then poured onto nested 20 (0.84 mm openings) and 30 (0.59 mm) mesh stainless steel screens placed in water-filled troughs. Manual agitation of the screens forces the fine clays and silts through the mesh and concentrates the coarser sand and fossil material on the screens. The screens are then placed at a tilt facing the sun to dry. Once dry, the coarse concentrate is transferred into plastic sample bags and labeled with all pertinent site locality data.

HEAVY LIQUID FLOATATION

Screenwashed concentrates can be further concentrated by the use of heavy liquids (e.g., zinc bromide and/or tetrabromoethane) to concentrate particles of equal density. Generally, fossil bones and teeth sink along with heavy mineral grains (e.g., magnetite) while lighter quartz and feldspar mineral grains float. This separation process produces a very rich concentration of fossil remains, typically isolated teeth of small mammals (e.g., rodents).

PALEOBOTANICAL PREPARATION

Preparation of plant fossils will involve first splitting slabs of mudstone/siltstone matrix along laminations to reveal individual or composite leaf impressions. Any remaining matrix still obscuring the impressions will then be removed with X-acto knives. The exposed impressions may require stabilization with specialized media (e.g., Vinac or Butvar).

FOSSIL CURATION

Following preparation of salvaged fossil remains the specimens will be sorted/picked, identified, and catalogued as described below. Fossil curation may be overseen by the contracted Project Paleontologist, or by the designated repository, and shall follow the standards of the designated repository. Prior to commencement of work, an estimate of fossil curation costs should be developed based on number and type of specimens, curation labor rates, curation supply needs.

SORTING/PICKING

Fossils require sorting/picking to group together specimens of the same taxon (e.g., species and/or genus) into individual taxon lots.

IDENTIFICATION

Once sorted, individual taxon lots will then be identified to the lowest taxonomic level practical (e.g., family, genus, and/or species).

CATALOGUING

Sorted and identified specimens are then assigned unique specimen catalogue numbers and entered into an electronic catalogue database. A specimen number may represent a single fossil specimen or a batch of specimens belonging to a single species. Catalogue numbers are written on individual specimens using India ink on a patch of white acrylic paint. Curation also involves placement of taxon lots into archival specimen trays with labels containing relevant taxonomic, geologic, and geographic information.

LOCALITY DATA

Formal descriptions of fossil collection locality records, including geographic, geologic, taphonomic, and collection data, need to be compiled and stored electronically with the specimen catalogue data.

FOSSIL STORAGE

For any recovered fossils from BLM managed lands within the Buena Vista Hills MDP, the fossils will be professionally curated and stored in the designated professional repository. The repository will professionally curate and adequately store the donated fossils, though ownership of the fossils will be retained by the BLM. Adequate storage shall include conservation of specimens in a stable environment away from flammable liquids, corrosive chemicals, organic materials subject to mildew, and sources of potential water damage. Typically, this is accomplished by placing curated specimens in archival quality, steel drawers and cabinets, which are housed in climate-controlled collection rooms. Specimens shall be available for study by future researchers, students, and citizen scientists, and thus shall be stored in a fashion that allows for retrieval of individual specimens and associated collection data. Specimen storage should be accompanied by supporting data (e.g., field notes, GPS data, photographs, geologic maps, stratigraphic reports), and fossil preparation data (e.g., description of preparation techniques and materials used for individual specimens).

For any fossils recovered from private surface lands for projects conducted on split-estate, fee land, or connected action projects, the fossils are the property of the surface land owner. In such instances, the surface land owner is strongly encouraged to donate fossils to a professional repository, who will curate and adequately store the fossils, as outlined above.

FINAL PALEONTOLOGICAL MITIGATION REPORT

A Final Paleontological Mitigation report (PMR) will be completed that presents the results of the implementation of this paleontological mitigation plan, for projects that recover fossils and also for projects where no fossils are discovered. For projects that recover fossils, the report will include discussions of the methods used, stratigraphic section(s) exposed, fossils collected, and significance of the recovered fossils relative to the research themes and questions. A complete inventory of salvaged, prepared, and curated fossils will be included. For projects where no fossils are recovered, an abbreviated technical report that summarizes the field methods used and stratigraphy exposed should be completed. All PMR's will be submitted to the BLM Bakersfield Field Office for review and approval.

Construction and Interim Reclamation

CREH proposes to reclaim 20 locations that are no longer needed for production activities on federal mineral leases CAS019571 and CAS019577. The Reclamation Plan is included as **Attachment 3. Reclamation activities shall be initiated prior to ground disturbance associated with the 2 APDs.** Reclamation of these areas will consist of ripping the topsoil to a depth of three to six inches. If any stockpiled topsoil is available from the existing nearby locations in 26B, CREH will use it for reclamation activities. Use of other borrow material requires prior BLM approval. CREH will then hand broadcast native seed, using a BLM approved weed-free native seed mix comprised of *Atriplex spp.* prior to the rainy season. The reclaimed areas will be fenced off and reclamation signs installed.

Reclamation activities will be initiated in the fall, starting no earlier than October to maximize use of the wet season. All reclamation areas will be monitored for a minimum of five years, or until the BLM determines the locations have been successfully reclaimed. Reclamation progress will be reviewed annually in the fall season to determine if additional re-seeding activities are required or if fencing and signage need to be repaired.

All permanent above-ground structures (e.g., production equipment, etc.) not subject to safety requirements shall be painted to blend with the natural color of the landscape. The paint used will be a color which simulates “Standard Environmental Colors.” The colors selected for the project location are Covert Green or Carlsbad Canyon.

At the beginning of construction, topsoil (approximately the top four inches of soil) shall be removed from the project area and stockpiled on an existing pad or previously disturbed surface in close proximity to the project site. Subsequent to well completion, topsoil will be re-applied to the cut and fill slopes, as well as the sump. “Well completion” is a technical term used to describe the final phase of well drilling; “well completion” is not synonymous with the final phase of project implementation. Prior to applying topsoil to the sump, it will be cleaned, ripped to a minimum depth of 12 inches, and re-contoured to match the surrounding topography. Remaining topsoil will be stockpiled on an existing well pad or other previously disturbed surface and retained for future reclamation. Topsoil will be retained for no more than one year.

All practicable measures will be taken to minimize erosion and stabilize disturbed soils. The following types of interim stabilization or similar methods may be used if necessary: jute netting, hydro-mulch, straw wattles, or crimped straw mulch.

Management of Noxious Weeds

A site-specific weed control Environmental Assessment (EA) and a Pesticide Use Permit (PUP) must be completed before any use of pesticides on BLM lands. This can be a lengthy process and requires specific information, public notification, and review by the BLM State Office. In addition, any use of pesticides shall comply with all applicable Federal and State laws. Pesticides shall only be used in accordance with their registered uses, must be on the list of pesticides approved for use on California BLM lands, and used within limitations imposed by the Secretary of the Interior. Applicators of herbicides must have completed pesticide certification training and have a Certified Pesticide Applicator’s License. A Pesticide Use Report (PUR) must be

completed within 48 hours of all herbicide applications and pesticide application records for the areas and acres treated must be submitted to the Authorized BLM Officer each year.

Final Reclamation

Disturbed lands shall be re-contoured to conform with existing undisturbed topography unless the BLM determines that re-contouring would result in negative impacts to special status species. No depressions shall be left that trap water or form ponds. All portions of final reclamation may be subject to additional cultural resources and paleontological inventory and may require a permit. The reclaimed landscape shall have characteristics that approximate the visual quality of the adjacent area with regard to location, scale, shape, color and orientation of major landscape features and meet the needs of the planned post disturbance land use.

Final reclamation shall specifically achieve the following:

1. The reclaimed area shall be stable and exhibit none of the following characteristics:
 - a. Large rills or gullies (greater than 6 inches deep).
 - b. Perceptible soil movement or head cutting in drainages.
 - c. Slope instability on, or adjacent to, the reclaimed area in question.
2. The soil surface must be stable and have adequate surface roughness to reduce runoff and capture rainfall and snow melt. Additional short-term measures, such as the application of mulch, shall be used to reduce surface soil movement.
3. Vegetation production and species diversity (including shrubs) shall approximate the surrounding undisturbed area (50-150% of the adjacent species composition and cover). The vegetation shall stabilize the site and support the planned post disturbance land use, provide for natural plant community succession and development, and be capable of renewing itself. This shall be demonstrated by:
 - a. Successful onsite establishment of species included in the planting mixture or other desirable species.
 - b. Evidence of vegetation reproduction, either spreading by rhizomatous species or seed production.
4. Habitat Restoration
 - a. Restoration will be required on unused portions, including abandoned, unused, or unnecessary roads, of the project area or oil and gas lease when deemed necessary by the BLM to maintain or improve habitat values. Restoration will be required when reserve area (Red Zone) and habitat corridor (Green Zone) limits are exceeded and when a

project or lease is abandoned. Restoration activities will be supervised by an onsite monitoring biologist.

- b. The following are examples of actions that may be required as part of restoration:
 - i. All trash will be removed from the site and disposed of properly.
 - ii. All cement, asphalt, and oil-contaminated soils will be removed from the site and disposed of properly.
 - iii. All pipelines and other oilfield infrastructure no longer in use will be removed from the site and disposed of properly.
 - iv. Topographic contours will be restored to the maximum extent possible.
 - v. Non-compacted soils or areas previously deep ripped will be disced to a depth of approximately 8 inches.
 - vi. Compacted sites will be deep ripped to a depth of 12 to 18 inches.
 - vii. Slopes greater than 30 per cent will be treated by erosion control methods such as discing along the contour, imprinting, mulching, or installing wattles.
 - viii. Sites will be seeded using methods such as drill or broadcast seeding with a site-appropriate seed mix, approved by the BLM Botanist. Exact seeding mixes and rates will depend on the site characteristics, the species chosen, and the current availability of native seed. Seed mixes will include dominant shrubs and native grasses and herbs compatible with the adjacent plant community. The best time for seeding is generally late summer to early fall prior to the onset of the rainy season.
 - ix. Sites will be considered restored when it can be documented that they support functional, native habitat. Evidence of attainment of this goal will be provided by the project applicant. Restoration in drainages, streambeds, and similar habitats where water is a substantial component may require conformance with conditions of a CDFW Streambed Alteration Agreement or other state or local permit. Demonstration of restoration may include documentation of:
 - 1. Visual continuity or similarity with adjacent native, undisturbed habitat or a designated reference site.
 - 2. Topography that follows natural contours and allows for the natural flow of water across the landscape.

3. Indiscernible boundary lines or areas between the disturbed and undisturbed areas.
4. Presence of habitat that supports threatened and endangered species.
5. Vegetation community composition within the normal or desired range. Ratios of native and non-native plants within normal or desired parameters. Presence and abundance of reproducing plants. Presence and abundance of biological soil crusts.
6. Evidence or presence of animals or animal sign on the site. Presence and abundance of desired species. Evidence, presence, and abundance of reproducing species.
7. Evidence of species diversity for both plants and animals.
8. Evidence of soil stability (minimal erosion).
9. Absence of signs of vehicle or other trespass. Absence of trash and contaminated soils.

ALTERNATIVE 2: NO ACTION

Under this alternative, BLM would not approve the APDs for Wells 612-26B, and 634-26B, which would include construction of 2 well pads, construction of 2 temporary impoundments (sumps), drilling, installation of associated facilities including 2 3-inch flowlines ranging from 3,961 feet to 7,489 feet in length and 11 power poles, and reclamation of 20 areas of approximately 4.050 acres of habitat in Section 26. . By denying the applications, the federal lessee/operator would be denied the opportunity or right to develop and produce the federal mineral estate.

Chapter 3. Affected Environment

This chapter briefly describes the physical and regulatory environment for elements that may be affected by the proposed action.

The following elements of the human environment were considered but determined to be either not present or unaffected by the proposed action and will therefore not be addressed further in this analysis. This project location does occur within National Conservation Lands. The project does not contain essential fish habitat, and there are no wetlands or riparian zones in the project area. The project would not affect low income or minority populations. The project area is located on public surface and does serve as a base property for a BLM grazing allotment, where grazing potential within the project location is available, not allocated. The proposed project

would not affect recreational experience as it occurs within a BLM administered oil and gas lease that does not currently attract significant recreational use, nor is it anticipated to attract significant recreational use in the future. Visual resources would not be impacted since the project occurs within a Class IV Visual Resource Management area that has already been moderately developed with oilfield infrastructure. Cultural resource surveys were conducted for all areas which could be potentially affected by the proposed project (BLM Cultural Resource Inventory Report #s CA-160-C/V-770 and 6000-2014-105). No cultural resources are located within the Area of Potential Effect for the proposed action. Tribal notification and coordination was conducted for potential future development within an area which includes the project locations. No places of cultural importance to Native American tribes were identified within the project areas as a result of this coordination.

Air Quality

The proposed project area is located in Kern County, California, and within the San Joaquin Valley Air Basin. At the state level, air regulatory duties lie with the California Air Resources Board (CARB) and at the federal level with the U.S. Environmental Protection Agency (EPA), Region IX. Oversight authority for air quality matters in California has been delegated to the county (District) level. The BLM has air program responsibilities through its permitting programs and Clean Air Act (CAA) requirements to analyze all actions for conformity to air quality plans. The BLM is further committed to comply with the procedures outlined in an Air Quality MOU (effective June 23, 2011) with the DOI, the USDA, and the EPA; this MOU outlines a common framework for analyzing and mitigating impacts to air quality and AQRVs associated with Federal oil and gas decisions through the NEPA process.

The federal Clean Air Act (CAA), as amended, and the California Clean Air Act (CCAA) contain the primary provisions relating to air quality. Provisions of the federal CAA that apply to BLM actions include the National Ambient Air Quality Standards (NAAQS), nonattainment area designation, the development of state implementation plans (SIPs), prevention of significant deterioration (PSD), air toxics, and federal conformity. The U.S. EPA, CARB, and regional air districts have issued rules to implement federal and state Clean Air Acts.

EPA uses "criteria pollutants" as indicators of air quality and has established for each of them a maximum concentration above which adverse effects on human health may occur. These threshold concentrations are called [National Ambient Air Quality Standards \(NAAQS\)](#). One set of limits (primary standard) protects health; another set of limits (secondary standard) is intended to prevent environmental and property damage. Under the federal CAA, the U.S. EPA has established NAAQS for seven criteria pollutants: ozone, respirable particulate matter (PM₁₀), fine particulate matter (PM_{2.5}), carbon monoxide, nitrogen dioxide, lead, and sulfur dioxide. California has established state Ambient Air Quality Standards for the same criteria pollutants, plus an additional three pollutants (visibility reducing particulates, sulfates, and hydrogen sulfide). States may have standards that are more restrictive than the federal thresholds, but they cannot be less restrictive. Although more stringent, the State standards have no specific dates to attain, unlike federal standards. Under State law, designations are made by pollutant, rather than by averaging time. A geographic area that meets or exceeds the primary standard is called an attainment area; areas that do not meet the primary standard are called nonattainment areas (<http://www.epa.gov/air/caa/peg/>).

Federal air quality standards for PM_{2.5} and ozone have been exceeded in the San Joaquin Valley air basin due to locally generated and/or transported in pollutants. This has resulted in the current designation of the air basin as a federal non-attainment area for PM_{2.5} and ozone under the NAAQS. The air basin has recently been designated as a federal maintenance area for PM₁₀. Based on the EPA 2010 designations, the primary pollutants of concern in the Project area are 8-hour ozone, PM₁₀, and PM_{2.5}. The remaining criteria pollutants are either unclassified or in attainment with the NAAQS.

The proposed project area is within the EPA Pacific Southwest Region 9 Planning Area; a State Implementation Plan (SIP) has been prepared for the planning area, which identifies sources of emissions and control measures to reduce emissions. In 2007, CARB adopted the State Strategy for achieving emissions reductions toward bringing these areas into attainment with federal standards for ozone and PM_{2.5}. The SIP mainly addresses stationary sources that have been identified as major contributors affecting regional air quality, such as power plants, facilities, etc.

District air quality plans that have recently been adopted and are relevant to the proposed Project include the *SJVAPCD 2007 Ozone Plan*, *2013 Plan for the Revoked 1-Hour Ozone Standard*, *2012 PM_{2.5} Plan*, and *2007 PM₁₀ Maintenance Plan*. These plans outline the strategy for achieving federal air quality standards by specific dates and identify control measures to reduce criteria pollutant emissions. Control measures identified in the *2007 Ozone Plan* reduce ozone precursor emissions, NO_x and Volatile Organic Compounds (VOCs). Particulate matter attainment strategies include control measures to reduce dust from unpaved roads and construction activities.

Applicable SJVAPCD Rules to Implement Air Quality Plans

Once air quality attainment demonstration Plans are adopted, the reductions necessary to meet the respective reduction mandates contained in the Plan(s) are achieved through prohibitory rules created and enforced by the local air quality board/APCD. Compliance with applicable Rules, Regulations, and land use and zoning requirements ensures continued movement towards achieving the SJVAPCD attainment goals. Examples of SJVAPCD rules that may be applicable to the proposed project are described below.

Rule 2280 (Portable Equipment Registration): Certain portable emissions units would be required for well drilling, service or workover rigs, pumps, compressors, generators, and field flares.

Rule 4101(Visible Emissions): The purpose of this rule is to prohibit the emissions of visible air contaminants to the atmosphere.

Rule 4623 (Storage of Organic Liquids): The purpose of this rule is to limit VOC emissions from the storage of organic liquids.

Regulation VIII (Fugitive PM₁₀ Prohibitions): The purpose of Regulation VIII is to reduce ambient concentrations of particulate matter (PM₁₀) by requiring actions to

prevent, reduce, or mitigate anthropogenic fugitive dust emissions. Regulation VIII rules pertinent to the proposed project include, but are not limited to, the following:

Rule 8021 (Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities): This rule limits fugitive dust emissions (PM₁₀) from construction, demolition, excavation, extraction, and other earthmoving activities. This rule applies to any such activity and other earthmoving activities, including, but not limited to, land clearing, grubbing, scraping, travel on-site, and travel on access roads to and from the site.

Rule 8031 (Bulk Materials): The purpose of this rule is to limit fugitive dust emissions from the outdoor handling, storage, and transport of bulk materials.

Conformity Determination

The classification of any area as a federal nonattainment and/or maintenance area brings an additional requirement for federal agencies. Section 176(c) of the CAA, as amended (42 U.S.C. 7401 et seq.), and regulations under 40 CFR, part 93, subpart W, state that “no department, agency or instrumentality of the federal Government shall engage in, support in any way or provide financial assistance for, license or permit, or approve any activity which does not conform to an applicable implementation plan.” This means that under the CAA 176(c) and 40 CFR, part 93, subpart W (conformity rules), federal agencies must make a determination that proposed actions in federal nonattainment areas conform to the applicable EPA approved implementation plans (if pertinent) before the action is taken.

Climate Change

Global climate change is the term commonly used to refer to any significant change in measures of climate (such as temperature, precipitation, or wind) lasting for an extended period (decades or longer) (Bakersfield RMP, 2014). Emissions of GHGs such as carbon dioxide and its equivalents (methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) are known to contribute to the global phenomenon of climate change. Based on research conducted by the Intergovernmental Panel on Climate Change (IPCC), evidence suggests, even with mitigation efforts, a strong, consistent, a positive linear relationship between GHGs and temperature, changes in precipitation patterns, oceanic warming, oceanic acidification, and reductions in Arctic sea ice. In addition, species extinction, threats to food security, and threats to human health are predicted. In general, “Climate change will amplify existing risks and create new risks for natural and human systems” (IPCC, 2014).

The current scientific consensus holds that emissions from human activities, particularly the consumption of fossil fuels for electricity production and transportation, have resulted in much higher concentrations of GHGs in the atmosphere than would be expected to occur naturally. In the last decade, increased GHGs are believed to have resulted in increases in global temperature and other climate change effects never previously recorded. Data show that the earth’s average surface temperature has increased by about 1.2 to 1.4 degrees Fahrenheit in the last 100 years (Bakersfield RMP, 2014).

Applicable Federal, State, and Local Regulations to Reduce Impacts of Oil and Gas Production on Climate Change

On April 17, 2012, EPA issued Final Air Rules to reduce harmful air pollution from the oil and natural gas industry. In addition, EPA issued final updates to its 2012 VOC performance standard for storage tanks used in crude oil and natural gas production and transmission on August 5, 2013. In addition, on May 12, 2016, EPA issued final rules to reduce emissions of methane, smog-forming volatile organic compounds, and toxic air pollutants from new, reconstructed and modified oil and gas sources; these final rules established updates to the New Source Performance Standards (NSPS) and the Source Determination Rule. The EPA also requires reporting of greenhouse gases from large GHG emissions sources in the United States through the Greenhouse Gas Reporting Program (GHGRP) (EPA, 2016).

The California Legislature passed the California Global Warming Solutions Act of 2006 [Assembly Bill 32 (AB 32)], creating a comprehensive, multi-year program to reduce greenhouse gas emissions in California. AB 32 requires the reporting of GHGs by major sources, applicable to industrial facilities, fuel suppliers, and electricity reporters. In 2015, California Governor issued Executive Order B-30-15, establishing a mid-term GHG reduction target for California of 40 percent below 1990 levels by 2030 (CARB, 2016).

In August 2008, SJVAPCD adopted the Climate Change Action Plan (CCAP), which directed the District to develop guidance to assist Lead Agencies, project proponents, permit applicants, and interested parties in assessing and reducing the impacts of project specific GHG emissions on global climate change (SJVAPCD, 2016). SJVAPCD has developed *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA and District Policy Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA*, intended to be applied to CEQA analysis. Although these policies are only available for CEQA analyses, the air district guidance may be generally applied by land-use agencies for reference. BLM concludes that the SJVAPCD requirement to quantify GHG emissions and to implement SJVAPCD Best Performance Standards to reduce GHG emissions would occur at the application stage, to be analyzed in a site-specific NEPA analysis (Bakersfield RMP, 2014).

Biological Resources

The project is proposed on public surface that occurs within an area identified as “Red Zone” or Reserve Area in the Bakersfield RMP and the 1998 *Recovery Plan for Upland Species of the San Joaquin Valley, California* (USFWS, 1998). A key component of the reserve and corridor linkage strategy is to maintain suitable amounts of habitat that are largely undisturbed by development activities. Habitat disturbance thresholds are criteria for maintaining long-term suitability of reserve areas (red zones) and habitat corridors (green zones). Limiting the amount of habitat (and ground) disturbance will allow sufficient habitat to remain intact, keep ecosystem processes functioning properly, and connect viable species populations across the landscape (see Bakersfield Proposed RMP/Final EIS, Appendix B, pp. 771-775).

Federally listed plant species in the southern San Joaquin Valley include Kern mallow (*Eremalche kernensis*), San Joaquin woolly-threads (*Monolopia congdonii*), California jewelflower (*Caulanthus californicus*), Hoover’s woolly-star (*Eriastrum hooveri*; delisted in 2003 but covered under the 2017 Oil and Gas Programmatic BO), and Bakersfield cactus (*Opuntia basilaris* var. *treleasei*). Listed animal species include San Joaquin kit fox (*Vulpes*

macrotis), blunt-nosed leopard lizard (*Gambelia sila*), giant kangaroo rat (*Dipodomys ingens*), and Tipton kangaroo rat (*Dipodomys nitratooides*). Additionally, this region contains the State listed San Joaquin antelope squirrel (*Ammospermophilus nelsoni*). A field survey to identify the potential for the occurrence of these listed species in the general project area was conducted by Kimberly Fiehler (West Kern Environmental Consulting, LLC) on May 16, 2018. A project-specific onsite inspection was completed by BLM Natural Resource Specialist Fernando Baños on June 4, 2018.

In general, the proposed project location is occupied by non-native annual grassland and valley saltbush scrub habitat that is moderately developed by oilfield infrastructure. There is no critical habitat for any threatened or endangered species on the project site or in the vicinity. Dominant species include red brome (*Bromus madritensis* ssp. *rubens*), fiddleneck (*Amsinckia menziesii*), and moderately dense allscale (*Atriplex polycarpa*). Kern mallow, San Joaquin woolly-threads, Hoover's woolly-star, California jewelflower, and Bakersfield cactus were not observed in the project area. California jewelflower is not known to naturally exist in Kern County, and Bakersfield cactus is endemic to a limited area of central Kern County in the vicinity of Bakersfield.

The biological surveys found no evidence of giant kangaroo rat (*Dipodomys ingens*) or Tipton kangaroo rat (*Dipodomys nitratooides nitratooides*) in the vicinity of the project sites. There are CNDDDB records that indicate presumed extant populations of giant kangaroo rat less than a mile from the individual project locations.

CNDDDB records indicate a presumed extant population of short-nosed kangaroo rat (*Dipodomys nitratooides brevinasus*) within the project footprint and surrounding area in the Buena Vista Hills. The short-nosed kangaroo rat is listed as a California State Species of Special Concern and a Bureau of Land Management Sensitive Species.

Several San Joaquin antelope squirrel (*Ammospermophilus nelsoni*) were observed during the field surveys. Individuals were observed on the proposed well pad locations, the access roads, and proposed pipeline routes. CNDDDB records indicate a presumed extant population of San Joaquin antelope squirrel (*Ammospermophilus nelson*) within the project footprint and surrounding area in the Buena Vista Hills.

No species specific or protocol level Blunt-nosed leopard lizard (*Gambelia sila*) surveys were conducted for the proposed project. However, no blunt-nosed were observed during any previous protocol level surveys and no individuals were observed during the November 14, 2017 field surveys. There are no burrows suitable for use by blunt-nosed leopard lizard within the proposed project site. In addition, there are no CNDDDB records of blunt-nosed leopard lizard within the project footprint, although records indicate a presumed extant population less than a mile northeast of the project locations.

Four potential San Joaquin kit fox (*Vulpes macrotis*) dens were observed within the survey areas, however no individuals or their sign were observed. CNDDDB records indicate a presumed extant population of San Joaquin kit fox within the project footprint and surrounding area in the Buena Vista Hills.

Paleontological Resources

Every geologic unit can be assigned a Potential Fossil Yield Classification (PFYC) class based on the probability and abundance of known vertebrate fossils and scientifically significant invertebrate and plant fossils (BLM 2007). The PFYC scheme ranges from very low (PFYC 1) to very high (PFYC 5) depending on the potential fossil yield (BLM 2016). Unknown fossil potential is assigned to geologic units that do not have a clear PFYC assignment (PFYC U). Typically paleontological resource compliance is required for earthwork occurring within PFYC classes 3, 4, 5, or U rock units.

The results of a paleontological resource screening indicated that the project area occurs within the Tulare Formation which has been assigned a PFYC value of 5, due to a high potential for the presence of fossil remains.

Soil Resources

CREH proposes to drill 2 wells and conduct reclamation throughout Section 26, T31S, R23E, MDBM. There are six soil map units located within the project area, which includes:

- **Elkhills sandy loam, 15 to 30 percent slopes (#444)** – This soil map unit is present on hillslopes. The typical profile of these soils are sandy loam from 0 to 34 inches and coarse sandy loam below. These soils are well drained and not designated as prime farmland.
- **Elkhills-Legray complex, 15 to 30 percent slopes (#660)** – This soil map unit is present on hillslopes. The typical profile of these soils are sandy loam from 0 to 34 inches and coarse sandy loam below. These soils are well drained and not designated as prime farmland.
- **Elkhills-Legray complex, 30 to 50 percent slopes (#661)** - This soil map unit is present on hillslopes. The typical profile of these soils are sandy loam from 0 to 34 inches and coarse sandy loam below. These soils are well drained and not designated as prime farmland.
- **Haplocambids, thick-Elkhills complex, 9 to 15 percent slopes (#730)** – This soil map unit is present on hillslopes. The typical profile of these soils are loam from 0 to 20 inches, gravelly sandy clay loam from 20 to 26 inches, gravelly sandy loam from 26 to 33 inches, gravelly loam from 33 to 54 inches, and very gravelly loam below. These soils are well drained and not designated as prime farmland.
- **Haplocambids, thick-Elkhills complex, 15 to 30 percent slopes (#731)** – This soil map unit is present on hillslopes. The typical profile of these soils are loam from 0 to 20 inches, gravelly sandy clay loam from 20 to 26 inches, gravelly sandy loam from 26 to 33 inches, gravelly loam from 33 to 54 inches, and very gravelly loam below. These soils are well drained and not designated as prime farmland.
- **Haplocambids, thick-Elkhills complex, 30 to 50 percent slopes (#732)** – This soil map unit is present on hillslopes. The typical profile of these soils are sandy loam from 0 to 34 inches and coarse sandy loam below. These soils are well drained and not designated as prime farmland.

Soil Erosion Factors

Soil Map Unit	K Factor*	Wind Erodibility Group**
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Elkhills sandy loam, 15 to 30 percent slopes (#444)	0.24 Moderately high	3 Moderately high
Elkhills-Legray complex, 15 to 30 percent slopes (#660)	0.24 Moderately high	3 Moderately high
Elkhills-Legray complex, 30 to 50 percent slopes (#661)	0.24 Moderately high	3 Moderately high
Haplocambids, thick-Elkhills complex, 9 to 15 percent slopes (#730)	0.37 Moderate	5 Moderate
Haplocambids, thick-Elkhills complex, 15 to 30 percent slopes (#731)	0.37 Moderate	5 Moderate
Haplocambids, thick-Elkhills complex, 30 to 50 percent slopes (#732)	0.24 Moderately high	3 Moderately high

*Values of K can range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

**A wind erodibility group consists of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The wind erodibility group provides an indication of how susceptible areas disturbed by construction activities are to wind erosion. Soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.

The project location is within a previously developed oilfield with numerous access roads, wells, pipelines, power lines, and other oilfield infrastructure. As such, soils are moderately disturbed within the project area and are particularly prone to erosion from water and wind on previously disturbed soils.

Water Quality and Quantity

The proposed project is within the Tulare Lake Hydrologic Region, in the San Joaquin Basin and Kern County Subbasin. The Kern County Groundwater subbasin is bounded by the Kern County line in the north, on the granitic bedrock of the Sierra Nevada foothills and Tehachapi mountain in the east and southeast, and by the marine sediments of the San Emigdio Mountains and Coast Ranges in the southwest and west (DWR, 2006). Project activities would occur in the Tulare (Pleistocene) formation for which an aquifer exemption was granted in the 1982 Underground Injection Control Program Memorandum of Agreement between California Division of Oil and Gas Resources and the United States Environmental Protection Agency. The Buena Vista field does not have any protected groundwater. There are no perennial rivers, lakes, or streams in this project area. There are a number of intermittent and ephemeral blue-line drainages throughout Section 26, which intersect proposed reclamation activities in 3 locations.

Approximately 288,000 gallons of fresh water would be required for drilling and dust abatement per well. The water would be obtained by the West Kern Municipal Water District and trucked to the project site. Drilling water would be disposed of in a temporary impoundment (sump). CREH received a Notice of Applicability from the Central Valley Regional Water Quality Control Board pursuant to Water Quality Order 2003-0003-DWQ to discharge drilling muds and boring wastes in the proposed sumps. Produced water would be processed and treated (de-oiled, biocide treated, and filtration) at the Buena Vista Hills reclaimed water system located in Section

26. The treated water would be injected into UIC Class II injection wells which have been permitted by DDOGGR.

Chapter 4. Environmental Impacts

This section describes the environmental impacts of the Proposed Action and No Action Alternatives. This analysis addresses the direct and indirect effects of implementing the proposed project and includes the identified measures and COAs described in Chapter 2.

Air Quality

Proposed Action:

The proposed project would result in the emission of criteria pollutants for which the San Joaquin Valley Air Basin has a non-attainment or maintenance designation, including 8-hour ozone, PM₁₀, and PM_{2.5}. These emissions are associated with combustion sources such as diesel drill and completion/workover rig engines, drill pad construction equipment (i.e., dozers, backhoe, grader, etc.), equipment trucks, water trucks, drill rig crew trucks/vehicles, and portable lift equipment. In addition, localized impacts to air quality would occur during project implementation as a result of soil disturbance and fugitive dust emissions.

CREH has estimated project-related emissions for all pollutants of concern for the construction and drilling phase of the project. Emissions associated with site preparation were estimated using the Road Construction Emissions Model (RCM), Version 7.1.5.1 software, recommended by the SJVUAPCD for use in construction projects that involve the release of fugitive dust emissions. OFFROAD and EMFAC emission factors were used to calculate emissions of criteria pollutants from equipment and mobile sources.

The following table compares estimated emissions from construction and drilling activities with the EPA-determined *de minimis* emissions levels for all non-attainment and maintenance criteria pollutants in the San Joaquin Valley Air Basin.

Comparison of Construction and Drilling Emissions to Federal *De minimis* Levels for San Joaquin Valley Air Basin

Regulated Pollutant	Federal Designation	<i>De minimis</i> level (tons/year)	Emission Estimate for Project (tons/year)
Ozone (ROG)	Extreme non-attainment	10	0.271
Ozone (NOx)		10	4.90
PM10	Maintenance	100	0.135
PM2.5 (Direct emissions, SO2, NOx, VOC, or ammonia)	Non-attainment	100	1.0152

Well maintenance and reclamation activities would also result in emissions of criteria pollutants through temporary use of combustion sources, soil disturbance, and fugitive dust emissions. However, these emissions would be short-term and localized and clearly below *de minimis* emission levels.

Therefore, the proposed project is consistent with the SIP and emissions would not exceed the *de minimis* emission levels and are exempt from conformity determination (40 CFR Part 93.153). As a result, no formal conformity analysis or determination is required.

As described in Chapter 3, there are a number of SJVAPCD rules that will minimize air quality impacts, such as Rules 2280, 4101, 8021, and 8031. For example, applicant compliance with Regulation VIII (Rules 8021 and 8031) would minimize particulate emissions by requiring CREH to water unpaved access roads in the project area and to water soils prior to excavation and trenching and during backfilling while compacting. Applicant compliance with Rule 2280 would ensure that VOC and NO_x emissions from certain portable units, such as the drilling rig, would be evaluated per the SJVAPCD's calculation methodologies, and any increase in emissions would be fully offset during the air permitting process. Implementation of this existing regulatory mechanism would offset the increase in potential emissions related to the proposed project.

The indirect effects to air quality from the Proposed Action alternative would occur downstream from the project site through transportation, refining, and consumption of the end product. However, due to the large scale of oil and gas production in California and the rate at which existing wells are being abandoned, the addition of one producing oil well would not constitute a significant addition of oil to the market.

No Action:

There would be no impacts to air quality from the No Action Alternative outside of those already occurring in the Buena Vista Oilfield and the San Joaquin Valley Air Basin because the project would not occur. Any impacts on site would remain the same in absence of the proposed project.

Biological Resources

Proposed Action:

Project implementation would disturb 3.132 acres of habitat, although direct impacts to federally listed species would not be expected as there is no evidence of their presence in the vicinity of the project site. A "may affect" determination has been made for all federally listed species. Implementation of design features (COAs) for avoidance and protection of special status species would minimize any potential for impacts. Adherence to provisions of the 2017 Oil and Gas Programmatic Biological Opinion (08ESMF00-2016-F-0683) would compensate for unavoidable impacts to listed species.

No Action

There would be no additional impacts to biological resources from the No Action Alternative. However, the rejection of the APD would not alter the trajectory of listed species populations relative to APD approval because the amount of disturbance is inconsequential on a regional scale. Also, under the No Action alternative, there would be no off-site conservation of listed species habitat in perpetuity, and the impacts to habitat may only be postponed until the next APD is approved for the development of the mineral lease.

Climate Change

Proposed Action:

The proposed action would result in emissions of GHGs that are known to contribute to global climate change. These emissions are associated with combustion sources such as diesel drill and completion/workover rig engines, drill pad construction equipment (i.e., dozers, backhoe, grader, etc.), equipment trucks, water trucks, drill rig crew trucks/vehicles, and portable lift equipment. Emissions of GHGs could also occur through venting or fugitive losses from valves and fittings, pumps, compressors, and the well head.

CREH estimated project-related GHG emissions. It was estimated that the project would emit 408.36 metric tons of CO_{2e} over the life of the project. Put into perspective, the California Air Resources Board estimated a total of 440.4 million metric tons of CO_{2e} emitted to the atmosphere in 2015 (CARB, 2017), while this project would result in 408.36 metric tons. Thus, the emissions from drilling the 2 wells would be inconsequential at a local and regional scale.

Climate change is a global phenomenon resulting from the accumulation of GHGs locally, then regionally, but GHG emissions resulting from the proposed action are inconsequential at the local scale due to the small scale of the project.

The indirect effects to climate change from the Proposed Action alternative would occur downstream from the project site through transportation, refining, and consumption of the end product. Due to the large scale of oil and gas production in California and the rate at which existing wells are being abandoned, the addition of 2 producing oil wells would not constitute a significant addition of oil to the market, and burning of that oil would likewise not constitute a significant emission of GHGs.

As discussed in Chapter 3, evidence suggests that even with mitigation efforts, a strong, consistent, positive linear relationship between GHGs and temperature, changes in precipitation patterns, oceanic warming, ocean acidification, and reduction in Arctic sea ice. In addition, species extinction, threats to food security, and threats to human health are predicted. In general, “Climate change will amplify existing risks and create new risks for natural and human systems” (IPCC, 2014). The current scientific consensus holds that emissions from human activities, particularly the consumption of fossil fuels for electricity production and transportation, have resulted in much higher concentrations of GHGs in the atmosphere than would be expected to occur naturally. In the last decade, increased GHGs are believed to have resulted in increases in global temperature and other climate change effects never previously recorded. Data show that the earth’s average surface temperature has increased by about 1.2 to 1.4 degrees Fahrenheit in the last 100 years.

The cumulative impacts section of this environmental assessment does not include Climate Change because the phenomenon is innately a result of cumulative impacts, and analysis of greenhouse gas emissions serves as a proxy for assessing potential climate change effects. Thus, the discussion of direct and indirect impacts of the proposed action on global climate change adequately address cumulative impacts as well.

No Action:

There would be no additional impacts to the trajectory of global climate change from the No Action alternative; implementing this alternative would result in no net gain of GHGs in the atmosphere because the project would not occur.

Paleontological Resources

Proposed Action:

The project area is underlain by the Tulare Formation, which is identified to have a high potential for fossil resources (PFYC 4). A paleontological resources survey conducted in 2011 included the areas of T31S, R23E Section 25 and Section 6 and T32S, R24E Section 6 where the proposed action may occur. The proposed reclamation and drilling locations also falls under a Master Development Plan (MDP)-wide survey of the Buena Vista Hills area. Based on the research of the previous surveys, the Tulare Formation is an area that consistently and predictably yields vertebrate fossils. As a result, direct impacts to paleontological resources could occur during any excavation and earthwork in the area. As a result, paleontological monitoring shall be implemented for all construction-related activities involving terrain modification. These activities include, but are not limited to, excavation, auguring, and grading. Additionally, any cut and fill or excavation required in the proposed Reclamation Areas will also require a paleontological monitor. A paleontological mitigation plan is described in the Design Features/ Conditions of Approval (COAs) for Surface, described above, attached to this document and associated project permitting..

No Action:

There would be no direct impacts to paleontological resources under the no action alternative. Fossils would stay in place, and there would be no ground disturbance in the area. As a result, there would be no opportunity to study depositional environments or collect fossils where there are no natural exposures. Leaving fossils buried does not allow an opportunity for scientific investigation. Mitigating for adverse effects to paleontological resources is a management practice that preserves resources and accommodates development.

Soil Resources

Proposed Action:

Soil disturbance would occur as a result well pad and sump construction, staging site construction, and drilling operations. Topsoil and soil horizons would be removed and/or mixed, changing soil-water dynamics and removing nutrients from the project site. In addition, soils would be compacted, which could lead to surface runoff, sediment carry, and erosion concerns. The likelihood of water and wind erosion are moderate to moderately high throughout the project

area. However, CREH would minimize and mitigate these impacts by conducting interim reclamation utilizing site-specific topsoil on the temporary staging areas, cut and fill slopes, and the sump subsequent to drilling operations. This would include all practicable measures to minimize erosion and stabilize disturbed soils. Also, CREH would conduct final reclamation at the project site when the wells are abandoned. In addition, CREH would comply with all applicable federal, state, and local air quality rules and regulations in order to reduce emissions of particulate matter originating from soil disturbance at the project site.

CREH is required to comply with all federal, state, and local laws and regulations, including provisions of EPA regulation 40 CFR 112, Oil Pollution Prevention, and BLM California IM CA-92-124, Oil and Gas Guidelines for Undesirable Events (NTL-3A). Nonetheless, the potential remains for hydrocarbon and chemical leaks or spills to occur on the project site and contaminate soils during project implementation. Given the required regulatory compliance framework, the likelihood of these spills are low and the impacts to soils from spills would not be significant.

No Action:

There would be no impacts to soil from the No Action alternative because the project would not occur. However, implementation of the No Action alternative would not result in conservation of land in perpetuity, as required by the Oil and Gas Programmatic Biological Opinion. Although the intent of the Biological Opinion is to compensate for destruction of habitat, compensation and conservation of land through this Biological Opinion would result in the restriction of development, ultimately resulting in the restriction of soil disturbance as well.

Water Quality and Quantity

Proposed Action:

The proposed action would not result in direct or indirect impacts to underground sources of drinking water or surface waters. No underground sources of drinking water are known to exist in the project site. Surface waters are not expected to be directly or indirectly impacted because there are no blue-line drainages that would be significantly altered on the project site and CREH would implement all applicable Design Features/Conditions of Approval for Surface, which would avoid erosion, sediment carry, and other potential impacts to the adjacent drainages in the general project area. In addition, the project would not result in fresh water quantity impacts because CREH would obtain fresh water from West Kern Water District, a water management agency that implements water conservation measures and efficient use of urban water supplies under the California Urban Water Management Planning Act (West Kern Water District, 2016).

No Action:

There would be no impacts to water quality and quantity from the No Action alternative because the project would not occur.

CUMULATIVE IMPACTS

Air Quality

Proposed Action:

The direct and indirect impacts to air quality from the proposed action are miniscule at the local scale and inconsequential at the regional and global scale due to the small scale of the project. Thus, there would be no significant cumulative impacts.

No Action:

There are no cumulative impacts to air quality associated with the No Action alternative because the project would not occur.

Biological Resources

Proposed Action:

Compliance with the Project Specific Provisions of the 2017 Oil and Gas Programmatic Biological Opinion (08ESMF00-2016-F-0683) and other regulatory mechanisms such as EPA regulation 40 CFR 112, Oil Pollution Prevention, and BLM California IM CA-92-124, Oil and Gas Guidelines for Undesirable Events (NTL-3A) would effectively compensate for any direct or indirect effects to habitat and species in the San Joaquin Valley, including listed and sensitive species. BLM has made a “may affect” determination for listed species because there is no evidence that any occupy the project site but the project occurs within the boundaries established in the 2017 Oil and Gas Programmatic Biological Opinion. Cumulative impacts from habitat disturbance would be minimized by purchasing off-site mitigation acreage for federal oil and gas projects, ensuring that land identified as core areas, linkages, or corridors be conserved as habitat.

No Action:

There are no cumulative impacts to biological resources associated with the No Action alternative because the project would not occur.

Paleontological Resources

Proposed Action:

There would be no cumulative impacts to fossil resources. Future earthwork within the lease would follow similar mitigation requirements, and would be considered in a separate environmental analysis (EA).

No Action:

There are no cumulative impacts to biological resources associated with the No Action alternative because the project would not occur.

Soil Resources

Proposed Action:

Cumulative effects are expected to be negligible with the implementation of interim and final reclamation measures required in the Design Features. In addition, soils altered by project activities would be compensated for offsite as required by the Project Specific Provisions. Although the Provisions are intended to compensate for habitat disturbance, they effectively compensate for soil disturbance as well because development is restricted on compensation

lands. Thus, soil disturbance would be inconsequential at a local, regional, and global scale with no cumulative impacts.

No Action:

There are no cumulative impacts to geology and soil resources associated with the No Action alternative because the project would not occur.

Water Quality and Quantity

Proposed Action:

There would be no cumulative impacts to water quality and quantity from the Proposed Action alternative because there would be no direct or indirect impacts.

No Action:

There are no cumulative impacts associated with the No Action alternative because the project would not occur.

Chapter 5. Consultation and Public Involvement

Biological Consultation

Formal consultation with the U.S. Fish and Wildlife Service was initiated in 2016. The Fish and Wildlife Service issued their “No jeopardy” biological opinion on December 22, 2017 (Programmatic Biological Opinion on Oil and Gas Activities on Bureau of Land Management Lands in the San Joaquin Valley, 08ESMF00-2016-F-0683).

Persons, groups, and agencies consulted

Gabriel Garcia, Bakersfield Field Office Manager
John Hodge, Assistant Field Manager for Minerals
Daniel Padilla, Senior Regulatory Advisor, California Resources Corporation

Native American Consultation

Mr. Neil Peyron, Chairperson - Tule River Reservation
Mr. Ruben Barrios Sr., Chairperson - Santa Rosa Rancheria
Mr. Hector Lalo Franco –Heritage Program Director, Santa Rosa Rancheria
Mrs. Kathryn Morgan, Chairwoman, Tejon Indian Tribe

SUMMARY OF PUBLIC PARTICIPATION

BLM conducts external scoping on routine NOSs and APDs by posting notification that it is considering the NOS(s)/APD(s) on the E-Planning public website, which initiates the 30-day scoping period. In addition, APDs are published nationally at the time of acceptance at <https://reports.blm.gov>. The following NOS(s)/APD(s) were posted on May 29, 2018 on the E-Planning website to solicit public comment or requests to review the Draft EA; no comments were received.

LIST OF PREPARERS

Fernando Baños, Natural Resource Specialist

Tamara Whitley, Archaeologist and Paleontological Resource Specialist

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**United States Department of the Interior
Bureau of Land Management
Bakersfield Field Office**

**Environmental Assessment
Finding of No Significant Impact (FONSI)**

**California Resources Elk Hills, LLC
Buena Vista; 2 Applications for Permit to Drill
DOI-BLM-CA-C060-2018-0130-EA
Programmatic Project #032**

BACKGROUND

Bureau of Land Management (BLM) proposes to approve two (2) Applications for Permit to Drill (APDs) submitted by California Resources Elk Hills, LLC (CREH) to drill well 612-26B, on federal mineral lease CAS0019571, and well 634-26B on federal mineral lease CAS0019577 in Section 26, T31S, R23E, MDBM. The proposed project would occur on public lands containing BLM administered subsurface minerals within the Buena Vista Oilfield. Project implementation would include construction of 2 well pads, construction of 2 temporary impoundments (sumps), drilling Wells 612-26B, and 634-26B, and installation of associated facilities. These associated facilities include 2 3-inch flowlines, which will be placed on concrete sleepers along a staked route ranging from 3,961 feet to 7,489 feet in length to the existing 4D-26B LACT Setting, and a total of 11 power poles associated power lines. Additionally, in support of the two proposed APDs, this project would also include reclamation of 20 areas located in the same leases as the APDs, CAS0019571 and CAS0019577, in Section 26, T31S, R23E, MDBM. The total reclamation of these 20 areas will total 4.050 acres of habitat. Estimated habitat disturbance for the proposed project is **3.132 acres, requiring a total of 12.495 acres of compensation** to meet conditions of the 2017 Programmatic Biological Opinion on Oil and Gas (08ESMF00-2016-F-0683).

The purpose of the proposed action is to provide CREH with the authority to drill 2 new oil wells to expand production on federal mineral lease CAS0019571 & CAS0019577 and reclaim 20 areas of habitat in Section 26. The need for the proposed action is to respond to the APDs submitted by the applicant to conduct operations on public lands containing BLM administered subsurface minerals, under statutory authority of the *Federal Land Policy and Management Act of 1976*, the *Mineral Leasing Act of 1920*, as amended, and 43 CFR 3160.

This Environmental Assessment (EA) has been prepared in compliance with the National Environmental Policy Act (NEPA) and other relevant federal and state laws and regulations. The purpose of this document is to disclose and analyze the environmental consequences that are anticipated from the construction of 2 well pads, construction of 2 temporary impoundments (sumps), drilling Wells 612-26B, and 634-26B, installation of associated facilities, including 2 3-inch flowlines and a total of 11 power poles, and reclamation of 20 areas with approximately 4.050 acres of habitat in Section 26. BLM will decide whether to approve the 2 APDs submitted by CREH and under what conditions.

Finding of No Significant Impact

On the basis of the information and analysis contained in the EA, and all information found in the record of this action, it is my determination that: (1) approval of the Proposed Action will not have significant environmental impacts beyond those already addressed in the Bakersfield Resource Management Plan, approved in December 2014; (2) the Proposed Action is in conformance with the Resource Management Plan; and (3) the Proposed Action does not have a significant effect on the human environment. Therefore, an environmental impact statement for the proposed action is not necessary and will not be prepared. This finding is based on the following discussion:

Context: The proposed project is located on public land contained BLM administered subsurface minerals in Section 26, T31S, R23E, MDBM on federal mineral leases CAS0019571 & CAS0019571 in the Buena Vista Hills Oilfield. The discretionary action is to approve the APDs submitted by CREH for the drilling of 2 new oil wells, which would include construction of 2 well pads, construction of 2 temporary impoundments (sumps), drilling, and installation of associated facilities including 2 3-inch flowlines ranging from 3,961 feet to 7,489 feet in length, and a total of 11 power poles. The project would also include reclamation of approximately 4.050 acres within Section 26.

The proposed activity is a site-specific action with minor localized effects on air quality, cultural resources, soils, and special status plant and animal species in the immediate area. The EA details the effects of the action alternatives. None of the effects identified from the proposed action, including cumulative effects, are considered to be significant and do not exceed those effects described in the Resource Management Plan.

Intensity: I have considered the potential intensity/severity of the impacts anticipated from the proposed action to permit drilling 2 new oil wells. The project would include construction of 2 well pads, construction of 2 temporary impoundments (sumps), drilling Wells 612-26B, and 634-26B, and installation of associated facilities including 2 3-inch flowlines ranging from 3,961 feet to 7,489 feet in length, and a total of 11 power poles. The project would also include reclamation of approximately 4.050 acres. The following discussion is organized around the Ten Significance Criteria described in 40 CFR 1508.27. The discussions below apply to all project elements contained within the EA:

1. Impacts may be both beneficial and adverse and a significant effect may exist regardless of the perceived balance of effects. Potential impacts include the emission of air pollutants, soil disturbance, destruction of habitat for federally listed species, and degradation of fossil resources. However, none of these impacts would be significant at the local scale or cumulatively because of the small scale of the project and design features that would reduce impacts to immeasurable levels. Air emissions would be below *de minimis* levels; soils would be preserved during construction and would be restored to the extent possible once the construction phase concludes; listed species habitat destruction would be minimized and compensated for according to the terms of the applicable biological opinion; and degradation of paleontological resources would be minimized through implementation of the paleontological mitigation plan.

2. The degree to which the selected alternative would affect public health or safety. The proposed project is comparable to other similar activities and projects already undertaken on BLM-administered lands within the Bakersfield Field Office and nationwide with no unusual health or safety concerns. All operators are subject to the standards outlined in the California Occupation Safety and Health Plan, and the State must conduct inspections to enforce its standards and must operate occupational safety and health training and education programs. Also, operators must comply with federal safety regulations outlined in 43 CFR 3160 and the Onshore Oil and Gas Orders. Implementation of measures

to meet these standards and regulations would minimize risks to public health and safety; therefore, any impacts to public health and safety are not considered significant.

3. Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farm lands, wetlands, wild and scenic rivers, or ecologically critical areas. No park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas would be adversely affected by the proposed development. The project area has been surveyed and analyzed for biological, paleontological and cultural resources. Paleontological resource impacts will be mitigated through the implementation of a Paleontological Resource Mitigation Plan. Biological resources would not be significantly affected because CREH would implement the USFWS-approved Project Specific Provisions to mitigate for impacts to threatened and endangered species. CRC would compensate for unavoidable impacts to listed species habitat by dedicating lands for the permanent conservation of in-kind habitat.

4. The degree to which the effects on the quality of the human environment are likely to be highly controversial. It is highly unlikely that any portion of the analyzed action would be controversial. Similar actions are commonplace in the area and draw little controversy. Oil development has occurred within the San Joaquin Valley region for over 100 years and the BLM has found the effects to be reasonably predictable.

5. The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks. The proposed project is not unique or unusual. The BLM has experience implementing similar projects in similar areas and have found effects to be reasonably predictable. There are no predicted effects on the human environment which are considered to be highly uncertain or involve unique or unknown risks.

6. The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration. The proposed project does not set a precedent for future actions that may have significant effects. The proposed project is limited to the drilling of 2 oil wells and reclamation of approximately 4,050 acres of habitat. The project would include construction of 3 well pads, construction of 2 temporary impoundments (sumps), drilling Wells 612-26B, and 634-26B, and installation of associated facilities including 2 3-inch flowlines ranging from 3,961 feet to 7,489 feet in length, and a total of 11 power poles. Any future proposals submitted within the project area would be considered independently and be subject to site specific NEPA analysis and documentation.

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. The EA identified the potential for cumulative effects of the Project for the following resources: Air Quality, Biological Resources, Soil Resources, and Water Quality and Quantity.

For the following resources, the BLM determined that the following resources were not impacted, or the impacts were so highly localized that they would not contribute to cumulative impacts: Air Quality, Cultural Resources, Native American Values, Paleontological Resources, Soil Resources, and Water Quality and Quantity.

For Biological Resources, the BLM determined that cumulative impacts were less than significant, and compliance with that Biological Opinion and other applicable laws, regulations, and policies, would prevent significant cumulative effects to biological resources.

8. The degree to which the action may adversely affect districts, sites, highways, structures, or other objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources. Cultural resource field surveys (BLM Cultural Resource Inventory # CA-160-C/V-770 and 6000-2014-105) were conducted for the proposed project locations and any other areas which may be indirectly impacted by project construction activities. The results of these surveys indicate that there are no cultural resources within the Area of Potential Effect for the proposed action. As a result, there will be no adverse effect to districts, sites, highways, structures, or other objects listed in or eligible for listing in the National Register of Historic Places and there will be no loss or destruction of significant scientific, cultural, or historical resources.

9. The degree to which the action may adversely affect an endangered or threatened species or its designated critical habitat under the Endangered Species Act of 1973. The proposed action would not have significant impacts to listed species or critical habitat. Implementation of measures prescribed in the 2017 Oil and Gas Programmatic Biological Opinion Project Specific Provisions and the Design Features would minimize the potential for unintended or undue impacts to listed species. CREH's dedication of their private, conserved lands for the permanent conservation of listed species habitat will compensate for unavoidable impacts to listed species. There is no designated critical habitat in the project area.

10. Whether the action threatens to violate; Federal, State, or local law or requirements for the protection of the environment. This action would not violate federal, state, or local laws or requirements. The proposed action is fully consistent with the 2014 Bakersfield Resource Management Plan. The EA is in full compliance with the National Environmental Policy Act of 1969 and is consistent with the Federal Land Policy and Management Act of 1976, as amended. Approval of the proposed action would not result in undue or unnecessary resource degradation due to operator compliance with State and Federal regulations, the Lease Terms, the Design Features, spill prevention and control plans, and the 2017 Oil and Gas Programmatic Biological Opinion Project Specific Provisions. All approved resource impacts are necessary to authorize CREH to expand production on federal mineral lease CAS019577 & CAS0019577.

Prepared by:	<u>/S/ Fernando Baños</u>	<u>09/10/2018</u>
	Project Lead	Date

Approved by:	<u>/S/ Stephen Stith, for</u>	<u>09/11/2018</u>
	Assistant Field Manager - Minerals	Date

**United States Department of the Interior
Bureau of Land Management
Bakersfield Field Office**

Decision Record

**California Resources Elk Hills, LLC
Buena Vista; 2 Applications for Permit to Drill
DOI-BLM-CA-C060-2018-0130-EA
Programmatic Project #032**

Introduction

Bureau of Land Management (BLM) proposes to approve two (2) Applications for Permit to Drill (APDs) submitted by California Resources Elk Hills, LLC (CREH) to drill well 612-26B, on federal mineral lease CAS0019571, and well 634-26B on federal mineral lease CAS0019577 in Section 26, T31S, R23E, MDBM. The proposed project would occur on public lands containing BLM administered subsurface minerals within the Buena Vista Oilfield. Project implementation would include construction of 2 well pads, construction of 2 temporary impoundments (sumps), drilling Wells 612-26B, and 634-26B, and installation of associated facilities. These associated facilities include 2 3-inch flowlines, which will be placed on concrete sleepers along a staked route ranging from 3,961 feet to 7,489 feet in length to the existing 4D-26B LACT Setting, and a total of 11 power poles associated power lines. Additionally, in support of the two proposed APDs, this project would also include reclamation of 20 areas located in the same leases as the APDs, CAS0019571 and CAS0019577, in Section 26, T31S, R23E, MDBM. The total reclamation of these 20 areas will total 4.050 acres of habitat. Estimated habitat disturbance for the proposed project is **3.132 acres, requiring a total of 12.495 acres of compensation** to meet conditions of the 2017 Programmatic Biological Opinion on Oil and Gas (08ESMF00-2016-F-0683).

The purpose of the proposed action is to provide CREH with the authority to drill 2 new oil wells to expand production on federal mineral lease CAS0019571 & CAS0019577 and reclaim 20 areas of habitat in Section 26. The need for the proposed action is to respond to the APDs submitted by the applicant to conduct operations on public lands containing BLM administered subsurface minerals, under statutory authority of the *Federal Land Policy and Management Act of 1976*, the *Mineral Leasing Act of 1920*, as amended, and 43 CFR 3160.

Decision

I have reviewed the recommendations on the proposed action addressed in this environmental assessment. I find this action to be in conformance with applicable land use plans, that it effectively serves the public, and that it will not cause unnecessary or undue degradation. It is therefore my decision to approve the proposed action which is subject to the Design Features/Conditions of Approval identified for the proposed action in the Environmental Assessment.

Alternatives Considered but not Selected

A No Action Alternative that would deny the application was considered, but not selected.

Decision Rationale

The decision to approve the Applications for Permit to Drill on BLM administered subsurface minerals in the Buena Vista Hills best meets the purpose and need of BLM by authorizing CREH to expand production on federal mineral lease CAS0019571 CAS0019577, pursuant to the *Federal Land Policy and Management Act of 1976*, the *Mineral Leasing Act of 1920*, as amended, and 43 CFR 3160. This decision also meets the Bakersfield RMP's objective and decision: MM-O-1 and AC-D-13.

[MM-O-1] "Facilitate reasonable, economical, and environmentally sound exploration and development of leasable minerals while minimizing impacts to other resources."

[AC-D-13] "Designate 11,330 acres of public lands and 4,162 acres of federal mineral estate; within a boundary of 69,624 acres (combining the existing Lokern ACEC with the expansion to include the Buena Vista Hills and Valley), as the Lokern-Buena Vista ACEC administered with the following special management:

Identify as open for fluid mineral leasing, subject to major constraints (CSU- Protected Species and CSU-Sensitive Species stipulations)."

The proposed action is located on an existing lease that was issued in conformance with the above land use plan decisions. Issuance of the lease was not judicially challenged and the lease is considered a valid existing right with rights of development.

Consultation and Coordination

Public Involvement

BLM conducts external scoping on routine NOSs and APDs by posting notification that it is considering the NOS(s)/APD(s) on the E-Planning public website, which initiates the 30-day scoping period. In addition, APDs are published nationally at the time of acceptance at <https://reports.blm.gov>. The following NOS(s)/APD(s) were posted on May 29, 2018 on the E-Planning website to solicit public comment or requests to review the Draft EA; no comments were received.

Biological Consultation

Formal consultation with the U.S. Fish and Wildlife Service was initiated in 2016. The Fish and Wildlife Service issued their "No jeopardy" biological opinion on December 22, 2017 (Programmatic Biological Opinion on Oil and Gas Activities on Bureau of Land Management Lands in the San Joaquin Valley, 08ESMF00-2016-F-0683). The 2017 Oil and Gas Programmatic Biological Opinion provides take coverage for authorization of individual projects occurring on surface and subsurface lands administered by the BLM in the San Joaquin Valley that disturb less than 10 acres of habitat or that encompass linear actions less than 10 miles long. This project occurs in Kern County and disturbs 3.132 acres, thus satisfying both requirements for coverage under the 2017 Oil and Gas Programmatic Biological Opinion.

Plan Consistency

Based on information in the EA, the project record, and recommendations from BLM specialists, I conclude that this decision is consistent with the Bakersfield RMP; the Endangered Species Act; the National Historic Preservation Act; the Paleontological Resources Preservation Act; other cultural

resource management laws and regulations; Executive Order 12898 regarding Environmental Justice; and Executive Order 13212 regarding potential adverse impacts to energy development, production, supply and/or distribution.

Administrative Remedies

Administrative remedies may be available to those who believe they will be adversely affected by this decision. Appeals may be made to the Office of Hearings and Appeals, Office of the Secretary, U.S. Department of Interior, Board of Land Appeals (Board) in strict compliance with the regulations in 43 CFR Part 4. Notices of appeal must be filed in this office within 30 days after publication of this decision. If a notice of appeal does not include a statement of reasons, such statement must be filed with this office and the Board within 30 days after the notice of appeal is filed. The notice of appeal and any statement of reasons, written arguments, or briefs must also be served upon the Regional Solicitor:

U.S. Department of the Interior
Office of the Solicitor, Pacific Southwest Region
2800 Cottage Way, Room E-1712
Sacramento, CA 95825-1890

The effective date of this decision (and the date initiating the appeal period) will be the date of approval by the authorized officer.

/S/ Stephen Stith, for

Assistant Field Manager- Minerals

09/11/2018

Date