PROJECT REPORT

TO: ENVIRONMENTAL EVALUATION COMMITTEE **AGENDA DATE: February 11, 2021**

FROM: PLANNING & DEVELOPMENT SERVICES **AGENDA TIME 1:30 PM/ No. 1**

PROJECT TYPE: CUP #19-0028; Heber 1 Geothermal Repower Project SUPERVISOR DISTRICT #2

LOCATION: 895 Pitzer Road APN: 054-250-036 & 035-000

Heber, CA PARCEL SIZE: +/- 20 Acres & 8 Acres

GENERAL PLAN (existing) Heber Specific Plan Area GENERAL PLAN (proposed) N/A

ZONE (existing) A-2-G-SPA (General Agriculture) ZONE (proposed) N/A

GENERAL PLAN FINDINGS ☒ CONSISTENT ☐ INCONSISTENT ☐ MAY BE/FINDINGS

PLANNING COMMISSION DECISION: HEARING DATE: _____

☐ APPROVED ☐ DENIED ☐ OTHER

PLANNING DIRECTORS DECISION: HEARING DATE: _____

☐ APPROVED ☐ DENIED ☐ OTHER

ENVIROMENTAL EVALUATION COMMITTEE DECISION: HEARING DATE: 02/11/2021

INITIAL STUDY: 19-0033

☐ NEGATIVE DECLARATION ☒ MITIGATED NEG. DECLARATION ☐ EIR

DEPARTMENTAL REPORTS / APPROVALS:

PUBLIC WORKS	☒ NONE	☐ ATTACHED
AG	☐ NONE	☒ ATTACHED
APCD	☐ NONE	☒ ATTACHED
E.H.S.	☐ NONE	☒ ATTACHED
FIRE / OES	☐ NONE	☒ ATTACHED
SHERIFF.	☒ NONE	☐ ATTACHED

OTHER IID, Fort Yuma Quechan Indian Tribe, CUPA, Caltrans, HPUD

REQUESTED ACTION:

(See Attached)

☐ NEGATIVE DECLARATION
☒ MITIGATED NEGATIVE DECLARATION

Initial Study & Environmental Analysis
For:

Heber 1 Geothermal Repower Project
CUP No. 19-0028

Prepared By:

COUNTY OF IMPERIAL
Planning & Development Services Department
801 Main Street
El Centro, CA 92243
(442) 265-1736
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February 2021

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SECTION 1
INTRODUCTION

A. PURPOSE

This document is a ☐ policy-level, ☒ project level Initial Study for evaluation of potential environmental impacts resulting with the proposed project.

B. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) REQUIREMENTS AND THE IMPERIAL COUNTY'S GUIDELINES FOR IMPLEMENTING CEQA

As defined by Section 15063 of the State California Environmental Quality Act (CEQA) Guidelines and Section 7 of the County's "CEQA Regulations Guidelines for the Implementation of CEQA, as amended", an **Initial Study** is prepared primarily to provide the Lead Agency with information to use as the basis for determining whether an Environmental Impact Report (EIR), Negative Declaration, or Mitigated Negative Declaration would be appropriate for providing the necessary environmental documentation and clearance for any proposed project.

☐ According to Section 15065, an **EIR** is deemed appropriate for a particular proposal if the following conditions occur:

- The proposal has the potential to substantially degrade quality of the environment.
- The proposal has the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals.
- The proposal has possible environmental effects that are individually limited but cumulatively considerable.
- The proposal could cause direct or indirect adverse effects on human beings.

☐ According to Section 15070(a), a **Negative Declaration** is deemed appropriate if the proposal would not result in any significant effect on the environment.

☑ According to Section 15070(b), a **Mitigated Negative Declaration** is deemed appropriate if it is determined that though a proposal could result in a significant effect, mitigation measures are available to reduce these significant effects to insignificant levels.

This Initial Study has determined that the proposed applications will not result in any potentially significant environmental impacts and therefore, a Negative Declaration is deemed as the appropriate document to provide necessary environmental evaluations and clearance as identified hereinafter.

This Initial Study and Negative Declaration are prepared in conformance with the California Environmental Quality Act of 1970, as amended (Public Resources Code, Section 21000 et. seq.); Section 15070 of the State & County of Imperial's Guidelines for Implementation of the California Environmental Quality Act of 1970, as amended (California Code of Regulations, Title 14, Chapter 3, Section 15000, et. seq.); applicable requirements of the County of Imperial; and the regulations, requirements, and procedures of any other responsible public agency or an agency with jurisdiction by law.

Pursuant to the County of Imperial Guidelines for Implementing CEQA, depending on the project scope, the County of Imperial Board of Supervisors, Planning Commission and/or Planning Director is designated the Lead Agency, in accordance with Section 15050 of the CEQA Guidelines. The Lead Agency is the public agency which has the

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principal responsibility for approving the necessary environmental clearances and analyses for any project in the County.

C. INTENDED USES OF INITIAL STUDY AND NEGATIVE DECLARATION

This Initial Study and Negative Declaration are informational documents which are intended to inform County of Imperial decision makers, other responsible or interested agencies, and the general public of potential environmental effects of the proposed applications. The environmental review process has been established to enable public agencies to evaluate environmental consequences and to examine and implement methods of eliminating or reducing any potentially adverse impacts. While CEQA requires that consideration be given to avoiding environmental damage, the Lead Agency and other responsible public agencies must balance adverse environmental effects against other public objectives, including economic and social goals.

The Initial Study and Negative Declaration, prepared for the project will be circulated for a period of 20 days (*30-days if submitted to the State Clearinghouse for a project of area-wide significance*) for public and agency review and comments. At the conclusion, if comments are received, the County Planning & Development Services Department will prepare a document entitled "Responses to Comments" which will be forwarded to any commenting entity and be made part of the record within 10-days of any project consideration.

D. CONTENTS OF INITIAL STUDY & NEGATIVE DECLARATION

This Initial Study is organized to facilitate a basic understanding of the existing setting and environmental implications of the proposed applications.

SECTION 1

I. INTRODUCTION presents an introduction to the entire report. This section discusses the environmental process, scope of environmental review, and incorporation by reference documents.

SECTION 2

II. ENVIRONMENTAL CHECKLIST FORM contains the County's Environmental Checklist Form. The checklist form presents results of the environmental evaluation for the proposed applications and those issue areas that would have either a significant impact, potentially significant impact, or no impact.

PROJECT SUMMARY, LOCATION AND EVIRONMENTAL SETTINGS describes the proposed project entitlements and required applications. A description of discretionary approvals and permits required for project implementation is also included. It also identifies the location of the project and a general description of the surrounding environmental settings.

ENVIRONMENTAL ANALYSIS evaluates each response provided in the environmental checklist form. Each response checked in the checklist form is discussed and supported with sufficient data and analysis as necessary. As appropriate, each response discussion describes and identifies specific impacts anticipated with project implementation.

SECTION 3

III. MANDATORY FINDINGS presents Mandatory Findings of Significance in accordance with Section 15065 of the CEQA Guidelines.

IV. PERSONS AND ORGANIZATIONS CONSULTED identifies those persons consulted and involved in preparation of this Initial Study and Negative Declaration.

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V. REFERENCES lists bibliographical materials used in preparation of this document.

VI. NEGATIVE DECLARATION – COUNTY OF IMPERIAL

VII. FINDINGS

E. SCOPE OF ENVIRONMENTAL ANALYSIS

For evaluation of environmental impacts, each question from the Environmental Checklist Form is summarized and responses are provided according to the analysis undertaken as part of the Initial Study. Impacts and effects will be evaluated and quantified, when appropriate. To each question, there are four possible responses, including:

1. **No Impact:** A "No Impact" response is adequately supported if the impact simply does not apply to the proposed applications.

2. **Less Than Significant Impact:** The proposed applications will have the potential to impact the environment. These impacts, however, will be less than significant; no additional analysis is required.

3. **Less Than Significant With Mitigation Incorporated:** This applies where incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact".

4. **Potentially Significant Impact:** The proposed applications could have impacts that are considered significant. Additional analyses and possibly an EIR could be required to identify mitigation measures that could reduce these impacts to less than significant levels.

F. POLICY-LEVEL or PROJECT LEVEL ENVIRONMENTAL ANALYSIS

This Initial Study and Negative Declaration will be conducted under a ☐ policy-level, ☒ project level analysis. Regarding mitigation measures, it is not the intent of this document to "overlap" or restate conditions of approval that are commonly established for future known projects or the proposed applications. Additionally, those other standard requirements and regulations that any development must comply with, that are outside the County's jurisdiction, are also not considered mitigation measures and therefore, will not be identified in this document.

G. TIERED DOCUMENTS AND INCORPORATION BY REFERENCE

Information, findings, and conclusions contained in this document are based on incorporation by reference of tiered documentation, which are discussed in the following section.

1. Tiered Documents

As permitted in Section 15152(a) of the CEQA Guidelines, information and discussions from other documents can be included into this document. Tiering is defined as follows:

"Tiering refers to using the analysis of general matters contained in a broader EIR (such as the one prepared for a general plan or policy statement) with later EIRs and negative declarations on narrower projects; incorporating by reference the general discussions from the broader EIR; and concentrating the later EIR or negative declaration solely on the issues specific to the later project."

Tiering also allows this document to comply with Section 15152(b) of the CEQA Guidelines, which discourages redundant analyses, as follows:

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"Agencies are encouraged to tier the environmental analyses which they prepare for separate but related projects including the general plans, zoning changes, and development projects. This approach can eliminate repetitive discussion of the same issues and focus the later EIR or negative declaration on the actual issues ripe for decision at each level of environmental review. Tiering is appropriate when the sequence of analysis is from an EIR prepared for a general plan, policy or program to an EIR or negative declaration for another plan, policy, or program of lesser scope, or to a site-specific EIR or negative declaration."

Further, Section 15152(d) of the CEQA Guidelines states:

"Where an EIR has been prepared and certified for a program, plan, policy, or ordinance consistent with the requirements of this section, any lead agency for a later project pursuant to or consistent with the program, plan, policy, or ordinance should limit the EIR or negative declaration on the later project to effects which:

(1) Were not examined as significant effects on the environment in the prior EIR; or

(2) Are susceptible to substantial reduction or avoidance by the choice of specific revisions in the project, by the imposition of conditions, or other means."

2. Incorporation By Reference

Incorporation by reference is a procedure for reducing the size of EIRs/MND and is most appropriate for including long, descriptive, or technical materials that provide general background information, but do not contribute directly to the specific analysis of the project itself. This procedure is particularly useful when an EIR or Negative Declaration relies on a broadly-drafted EIR for its evaluation of cumulative impacts of related projects (*Las Virgenes Homeowners Federation v. County of Los Angeles* [1986, 177 Ca.3d 300]). If an EIR or Negative Declaration relies on information from a supporting study that is available to the public, the EIR or Negative Declaration cannot be deemed unsupported by evidence or analysis (*San Francisco Ecology Center v. City and County of San Francisco* [1975, 48 Ca.3d 584, 595]). This document incorporates by reference appropriate information from the "Final Environmental Impact Report and Environmental Assessment for the "County of Imperial General Plan EIR" prepared by Brian F. Mooney Associates in 1993 and updates.

When an EIR or Negative Declaration incorporates a document by reference, the incorporation must comply with Section 15150 of the CEQA Guidelines as follows:

- The incorporated document must be available to the public or be a matter of public record (CEQA Guidelines Section 15150[a]). The General Plan EIR and updates are available, along with this document, at the County of Imperial Planning & Development Services Department, 801 Main Street, El Centro, CA 92243 Ph. (442) 265-1736.

- This document must be available for inspection by the public at an office of the lead agency (CEQA Guidelines Section 15150[b]). These documents are available at the County of Imperial Planning & Development Services Department, 801 Main Street, El Centro, CA 92243 Ph. (442) 265-1736.

- These documents must summarize the portion of the document being incorporated by reference or briefly describe information that cannot be summarized. Furthermore, these documents must describe the relationship between the incorporated information and the analysis in the tiered documents (CEQA Guidelines Section 15150[c]). As discussed above, the tiered EIRs address the entire project site and provide background and inventory information and data which apply to the project site. Incorporated information and/or data will be cited in the appropriate sections.

- These documents must include the State identification number of the incorporated documents (CEQA

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Guidelines Section 15150[d]). The State Clearinghouse Number for the County of Imperial General Plan EIR is SCH #93011023.

- The material to be incorporated in this document will include general background information (CEQA Guidelines Section 15150[f]). This has been previously discussed in this document.

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II. Environmental Checklist

1. **Project Title**: Conditional Use Permit #19-0028 Heber 1 Repower Project
2. **Lead Agency**: Imperial County Planning & Development Services Department
3. **Contact person and phone number**: Mariela Moran, Planner II, (442) 265-1736
4. **Address**: 801 Main Street, El Centro CA, 92243
5. **E-mail**: marielamoran@co.imperial.ca.us
6. **Project location**: 895 Pitzer Road, Heber, CA
7. **Project sponsor's name and address**: Ormat Nevada Inc. 6140 Plumas St, Reno, NV 89519
8. **General Plan designation**: Heber Specific Plan Area
9. **Zoning**: A-2-G-SPA, General Agriculture (A-2), Geothermal Overlay Zone (G), and in the Heber Specific Plan Area (SPA).

10. **Description of project**: The Project's sponsor (Ormat Nevada Inc.) proposes upgrades to their existing Heber 1 geothermal facility (Proposed Project) amending their existing Conditional Use Permit (CUP) #15-0013. Conditional Use Permit #19-0028 would supersede existing CUP #15-0013. The upgrades are discussed in detail below in the Project Summary section.

11. **Surrounding land uses and setting**: The Proposed Project site is located within the Heber Specific Plan Area, which is designated for commercial, residential, industrial, and renewable energy land uses in mixed-use development (Imperial County 2015). Land surrounding the Proposed Project is zoned General Agriculture/Specific Plan Area (A2G-SPA). Two residences are located within a 2,000 feet radius of the proposed project site. The town of Heber is approximately 3,500 feet to the northwest of the Heber 1 Complex and the City of Calexico limits are located south of the proposed project site. A cattle feed lot is located to the north of the project site and the Southern Pacific right of way is located west.

12. **Other public agencies whose approval is required** (e.g., permits, financing approval, or participation agreement.):
Regional Water Quality Control Board
Imperial County Air Pollution Control District

13. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentially, etc.?
The AB 52 Notice of Opportunity to consult on the proposed project letter was mailed via certified mail on January 8, 2020 to President Jordan D. Joaquin, from the Quechan Indian Tribe. On January 10, 2020 we received an email from the Quechan Historic Preservation Officer stating that they did not have comments on this project.

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ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐	Aesthetics	☐	Agriculture and Forestry Resources	☐	Air Quality
☒	Biological Resources	☐	Cultural Resources	☐	Energy
☒	Geology /Soils	☐	Greenhouse Gas Emissions	☐	Hazards & Hazardous Materials
☐	Hydrology / Water Quality	☐	Land Use / Planning	☐	Mineral Resources
☐	Noise	☐	Population / Housing	☐	Public Services
☐	Recreation	☐	Transportation	☐	Tribal Cultural Resources
☐	Utilities/Service Systems	☐	Wildfire	☐	Mandatory Findings of Significance

ENVIRONMENTAL EVALUATION COMMITTEE (EEC) DETERMINATION

After Review of the Initial Study, the Environmental Evaluation Committee has:

☐ Found that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ Found that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ Found that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ Found that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ Found that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE DE MINIMIS IMPACT FINDING: ☒ Yes ☐ No

EEC VOTES	YES	NO	ABSENT
PUBLIC WORKS	☑	☐	☐
ENVIRONMENTAL HEALTH SVCS	☑	☐	☐
OFFICE EMERGENCY SERVICES	☑	☐	☐
APCD	☑	☐	☐
AG	☑	☐	☐
SHERIFF DEPARTMENT	☐	☐	☑
ICPDS	☑	☐	☐

for

Jim Minnick, Director of Planning/EEC Chairman

2-11-2021

Date:

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PROJECT SUMMARY

A. Project Location:

The Proposed Project site is located in Heber, CA, Imperial County. The Proposed Project would occur entirely within the existing Heber 1 facility, and located at 895 Pitzer Road, Heber, CA (Figure 1). The Proposed Project site is located within Assessor's Parcel Numbers (APN) 054-250-035 and 054-250-036. The Proposed Project site is zoned General Agriculture within the Heber Specific Plan Area (A-2-G-SPA). The Proposed Project site is generally bound by APNs 054-250-014 to the north, Pitzer Road to the east, East Jasper Road to the south, and a Union Pacific right-of-way and APN 054-250-027 and 054-250-026 to the west; the surrounding land uses and zoning are General Agriculture and Heavy Agriculture and currently contain active agricultural operations.

B. Project Summary:

Ormat proposes to upgrade the existing Heber 1 geothermal facility, which is owned by the subsidiary Heber Field Company, by shutting down the dual-flash steam turbine generator, and installing two new OECs (OEC 1 and OEC 2), reconfiguring two of the existing OECs (OEC 11 and OEC 13), including the installation of ancillary equipment. These updates are referred to herein as the Proposed Project. OEC 1 and 2 combined would function as an Ormat Integrated Three-Level Unit (I3LU) and will use air cooling rather than water cooling for the motive fluid. OEC 11 and OEC 13 combined would function as an Integrated Two-Level Unit (ITLU) and will use the existing cooling tower. The proposed new setup is expected to be better suited to the current and expected future conditions of the geothermal resource than the steam turbine generator, improving efficiency of the operations and bringing net and gross generation levels.

Applicant is also proposing to modify the permitted water intake from 1,800 acre feet of irrigation water to the existing water intake of 2,300 acre feet of irrigation water. The purpose of the repower project is to improve efficiency of the operations and increase the net and gross generation to 52MW (net), 78.2 (gross) as initially requested under Conditional Use Permit #15-0013. This proposed project also proposes to extend the permitted life of Heber 1 to 30 years (2020-2050).

The Proposed Project includes the following improvements and additions to the existing Heber 1 facility include (Figure 2):

- Replacing the Steam Turbine and Bottoming units with Ormat Integrated three-level unit (I3LU) and Integrated two-level unit (ITLU)
    - The I3LU and ITLU would generate 51.3 megawatts (MW) gross and 36.2 MW net
- The I3LU configuration would include new air cooled OECs (Ormat Energy Converter)
    - New air cooled OECs will be OEC 1 and OEC 2
        - New OECs will require installation of two additional isopentane storage tanks (10,000 gallons each) on-site
        - New VRMU (Vapor Recovery Mechanical Unit)
    - OEC 11 and OEC 13 will be converted to an ITLU
    - The existing cooling tower and VRMU will be used for OEC 11 and OEC 13
- Additional modification to OEC 11 and OEC 13 includes
    - Some of the brine heat exchangers will be replaced
    - Replace the existing generator and one Turbine
    - Replace a portion of the piping system and pumps
    - No modifications are planned to the existing cooling water system (tower, pumps, condensers, piping etc.) and VRMU
- The Proposed Project does not include alterations to existing units OEC 14 and OEC 12
- Existing substation will be used without changes
- New Electrical, Control & Machinery Building

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Ormat Energy Converter 1

Ormat Energy Converter 1 (OEC 1) is a two-turbine combined cycle binary unit that operates on a subcritical Rankine cycle with isopentane as the motive fluid for the system. OEC 1 also includes a generator, vaporizer, air cooled condensers, and preheaters and recuperators. OEC 1 will be served by a VRMU for purging vapor prior to maintenance. The design capacity for OEC 1 is 19.85 MW and the height of the I3LU is approximately 22 feet. OEC-1 in combination with OEC-2 (below) will function as a single I3LU.

Ormat Energy Convertor 2

Ormat Energy Converter 2 (OEC 2) is a two-turbine combined cycle binary unit that operates on a subcritical Rankine cycle with isopentane as the motive fluid for the system. OEC 2 also includes also includes a generator, vaporizer, air cooled condensers, and preheaters. OEC 2 will be served by a VRMU for purging vapor prior to maintenance. The design capacity for OEC 2 is 17.25 MW. As mentioned above, OEC-2 in combination with OEC-1 will function as a single I3LU with a height of approximately 22 feet.

Air Coolers

Cooling for OEC-1 and OEC-2 will be accomplished without the use of cooling water. The MF will be cooled using air coolers. The air coolers operate by passing the MF through an air heat exchanger with airflow generated by a large fan. There will be three 10-bay air coolers and one 14-bay air cooler. The air coolers will be purged to remove non-condensable gases, and the purge gas will pass through the new VRMU to capture isopentane and VOC emissions before being released to the atmosphere.

Ormat Energy Converter-11 Integrated Two-Level Unit (OEC-11 ITLU)

OEC-11 is a two-turbine bottoming unit which includes a generator, vaporizer, preheater, and condenser. The existing integrated purging units are no longer used, and purging is accomplished using the existing VRMU. With the proposed upgrades, OEC-11 will become an ITLU and will be renamed OEC-11 ITLU. The upgrades include the replacement of one turbine with a new, larger unit plus new vessels associated with the larger turbine. In addition to these changes, OEC-11 will incorporate the condensers that are currently part of OEC-13, and the rest of OEC-13 will be decommissioned. The gross output of the new OEC-11 ITLU will be 14.5 MW. and will reach a height of approximately 22 feet.

Vapor Recovery Maintenance Unit (VRMU)

A new VRMU will be used for purging and maintenance operations for OEC-1 and OEC-2. Vapor from the OEC's are passed through a knock-out drum and condenser, which collect the majority of the isopentane and other condensable gases. Condensed isopentane is returned to the MF system, while remaining gases are passed through an activated carbon adsorption filter which removes remaining isopentane vapor and other organics. The overall isopentane vapor recovery efficiency for the VRMU exceeds 99%. The new VRMU is intended to primarily service the new units: OEC-1, OEC-2, and the air coolers. However, all of the OEC units, air coolers, and tanks are interconnected, and the new VRMU may be used with any of the existing units when appropriate based on current operations.

ORMAT will continue to operate its existing VRMU to primarily service OEC-11 ITLU, OEC-12 and OEC-14, and can use it with the new OECs and air coolers if appropriate based on current operations.

Two Additional Isopentane (Motive-Fluid) Above Ground Storage Tanks

To support the new OEC units, two new above ground storage tanks for additional isopentane supply would be installed. There are two existing storage tanks at Heber 1. The new tanks will be sited near the new OECs, each tank has a capacity of 10,000 gallons. Isopentane gases from the tanks are captured and vented to the VRMUs.

On-site Retention Basins

There are currently three retention basins onsite; as part of a separate and discrete action currently approved by the Regional Water Quality Control Board, two of the three ponds that currently occupy that location are no longer

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necessary and are currently being drained. The stormwater retention pond will be modified to accommodate placement of the new equipment while meeting requirements for a 100-year storm . For the purposes of this analysis, the retention basins will be considered filled, developed land for construction.

Water Usage

Per the original CUP (15-0013), the permittee may use up to a total of 1,800 acre feet of irrigation water per year for 30 years from Imperial Irrigation District (IID). On November 18, 2019, the IID issued an Amendment No. 1 to the Amended and Restated Water Supply Agreement to supply an additional 500 acre feet of water per year in addition to the 1,800 acre feet that was in the agreement, for a total of 2,300 acre feet per year. The purpose of this increase is the original operational process utilized flashes of geothermal brine to make steam, which made water condensate that was then used in the wet cooling tower. Changes to these existing facilities will no longer generate the extra water needed for the cooling towers. In 1985, the IID supplied 5,000 acre feet per year, so over time with equipment modifications and changes in the geothermal resource, water consumption has fluctuated. There will be no change to the existing water intake.

Construction Schedule

Construction of the Proposed Project would start April 2021 and would take approximately 6 months to construct. Construction of OEC 1 and OEC 2 would be initial phase of construction. Approximately two months prior to the end of the construction timeline, construction on OEC 11 and OEC 13 would begin.

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Exhibit "A"
Vicinity Map

PROJECT LOCATION MAP



IMPERIAL COUNTY CALIFORNIA

HEBER 1 REPOWER PROJECT - ORMAT NEVADA INC.
CONDITIONAL USE PERMIT #19-0028
INITIAL STUDY #19-0033
APN 054-250-035 & 036-000

HIGHWAYS
PARCELS
CITYLIMIT
PROJECT LOCATION

N

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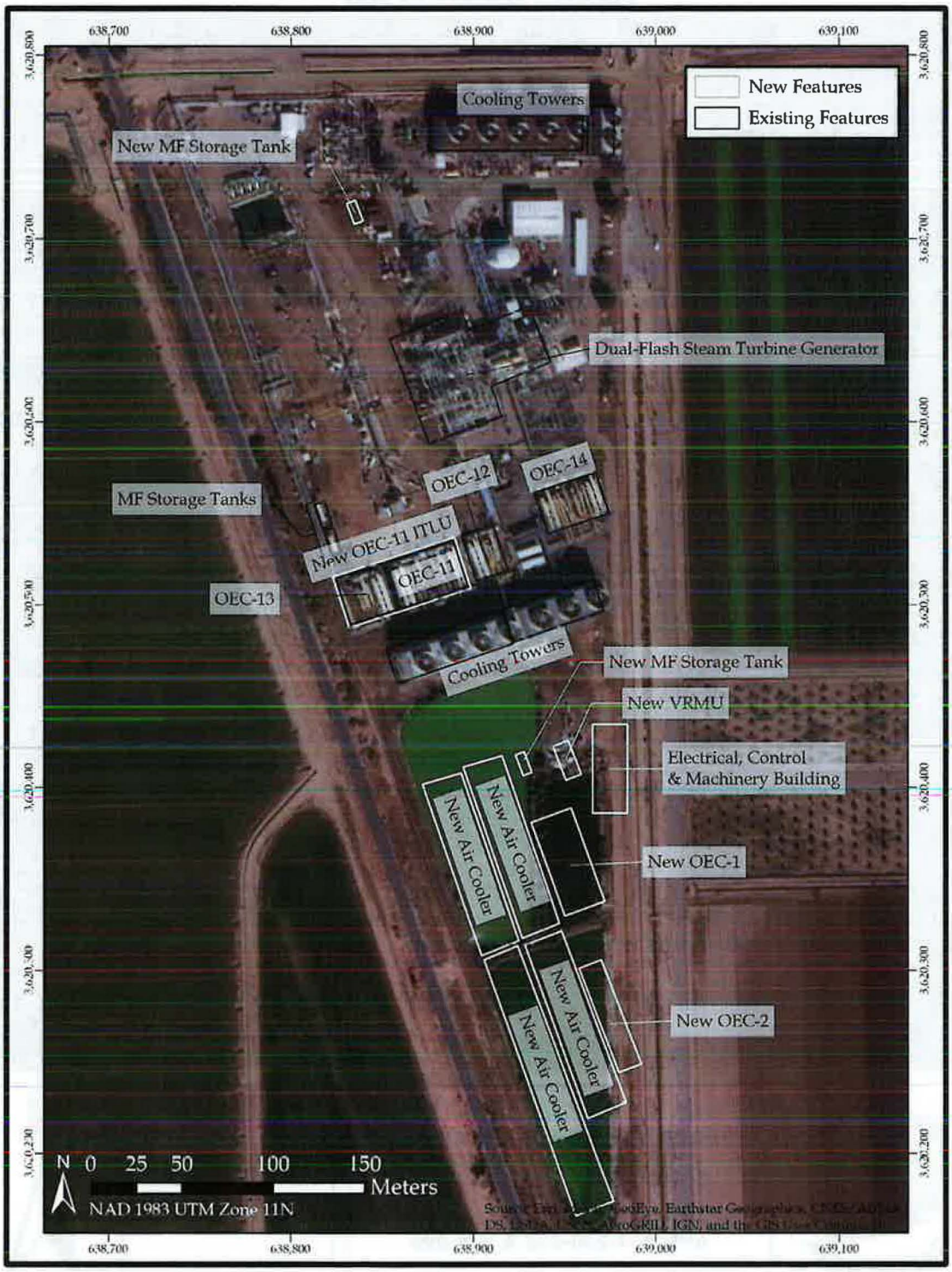
Exhibit "B"
Heber 1 Facility Layout Showing Existing and Proposed Equipment



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EVALUATION OF ENVIRONMENTAL IMPACTS:

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

   a) Earlier Analysis Used. Identify and state where they are available for review.
   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
   c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

   a) the significance criteria or threshold, if any, used to evaluate each question; and
   b) the mitigation measure identified, if any, to reduce the impact to less than significance

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	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

I. *AESTHETICS*

Except as provided in Public Resources Code Section 21099, would the project:

a) Have a substantial adverse effect on a scenic vista or scenic highway? ☐ ☐ ☐ ☒

a) No impact. The Proposed Project site is located within the Heber Specific Plan Area, which is designated for commercial, residential, industrial, and renewable energy land uses in mixed-use development. Land surrounding the Proposed Project is zoned General Agriculture/Specific Plan Area (A2G-SPA) (Imperial County 2015). The Proposed Project site is directly north of Jasper Road, east of the Southern Pacific Railroad tracks, and west of Pitzer Road. The Imperial County General Plan does not specifically designate any areas surrounding or within the Heber Specific Plan Area site as a scenic vista (Imperial County 2015). Additionally, the Proposed Project site is not within an area identified as containing a short- or long-range views. The area is fully developed, and implementation of the Proposed Project would not result in an impact to a scenic vista. No impact would occur.

b) Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway? ☐ ☐ ☐ ☒

b) No Impact. The Proposed Project site is approximately 1 mile west of State Route (SR)-111, 2.5 miles north of SR-98, and 1.5 miles south of SR-86. SR-111 is eligible for future Scenic Highway Designation between Bombay Beach (on the Salton Sea) to the County Line however, this section of SR-111 is approximately 45 miles north of the Proposed Project site (Imperial County 2008). Further, none of the above identified State Routes are not visible from the Proposed Project site. The Proposed Project site is currently developed, and construction activities and modifications associated with the Proposed Project would occur within the existing facility boundary. Additionally, the surrounding area is zoned General Agriculture/Specific Plan Area (Imperial County 2015). Therefore, implementation of the Proposed Project would not damage scenic resources within a state scenic highway. No impact would occur.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surrounding? (Public views are those that are experienced from publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality? ☐ ☐ ☒ ☐

c) Less Than Significant Impact. The Proposed Project site is not located within an urbanized area of Imperial County. Construction activities associated with the Proposed Project would occur entirely within the footprint of the existing facility boundary. The visual character of the Proposed Project site would be slightly altered due to the construction of OEC 1 and OEC 2; however, the design of the new energy converters would be similar in nature to the energy converters currently on-site. The siting and construction of OEC 1 and OEC 2 would not substantially alter the visual character of the Proposed Project site, as the features associated with the Proposed Project are similar in nature to features currently located within the Proposed Project site. Therefore, implementation of the Proposed Project would result in a less than significant impact associated with the existing visual character or quality of the Proposed Project site.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? ☐ ☐ ☒ ☐

d) Less Than Significant Impact. The Proposed Project would not include the installation of any new sources of substantial nighttime lighting or glare, and potential impacts associated with construction would be minor and temporary. All light and glare impacts associated with implementation of the Proposed Project would be similar in nature to existing light and glare produced at the Proposed Project site. Therefore, potential impacts on daytime and/or nighttime views in the area associated with light or glare would be less than significant.

II. *AGRICULTURE AND FOREST RESOURCES*

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. –Would the project:

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		Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)
a)	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒

a) No Impact. The Proposed Project site is located within the Heber Specific Plan Area, which is designated for commercial, residential, industrial, and renewable energy land uses in mixed-use development (Imperial County 2015). The Project Site is zoned General Agriculture/Specific Plan Area (A2G-SPA) according to the Imperial County Planning/Building Department, with geothermal exploration listed as a permitted use under this zoning area under the Imperial County Land Use Ordinance (Imperial County 1998a; 1998b). According to the California Department of Conservation, the Proposed Project site is classified as Urban and Built-Up Land and does not contain Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (DOC 2019a). Therefore, implementation of the Proposed Project would not result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. No impact would occur.

b)	Conflict with existing zoning for agricultural use, or a Williamson Act Contract?	☐	☐	☐	☒

b) No Impact. The Proposed Project site does not contain any lands under a Williamson Act contract (DOC 2016); therefore, no impact would occur.

c)	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒

c) No impact. The Proposed Project site is not zoned as forestland, timberland, or timberland zoned Timberland Production (Imperial County 2015). No impact would occur.

d)	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒

d) No impact. As described in Impact c), no forest land exists on the Proposed Project site (Imperial County 2015). No impact would occur.

e)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

e) No impact. The Proposed Project site is located on an existing developed parcel. As described in Impacts a) and c), no farmland or forest land is located on or adjacent to the site (Imperial County 2015). No impact would occur.

III. *AIR QUALITY*

Air Sciences Inc. prepared an air quality analysis for the Proposed Project.(Appendix G). The results of this analysis are summarized below, but for further information regarding methods and results, refer to Appendix G.

The Proposed Project is located in southern El Centro in the community of Heber, which is an unincorporated area located in the southwestern portion of Imperial County. The Proposed Project location is within the Salton Sea Air Basin (Air Basin) and air quality regulation is administered by the Imperial County Air Pollution Control District (ICAPCD).

Existing Air Emissions

The Proposed Project would shut down the dual-flash steam turbine generator, install two new OECs, and reconfigure two of the existing OECs at the Heber 1 site. The OECs generate power by taking geothermal energy (e.g. heat) to vaporize liquid isopentane, which is the motive fluid that powers the turbines to create electricity. The primary air pollutant from these units is isopentane, which is a VOC. Isopentane emissions occur due to maintenance, purging, and fugitive leaks. During maintenance, the unit is shut down and the isopentane is evacuated before the system is opened for the necessary work to be performed. To evacuate the system, the liquid isopentane is transferred to storage tanks, and

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	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

the remaining vapors are passed through the VRMU. The overall recovery rate of isopentane during evacuation is greater than 99%. However, trace quantities of vapors as well as liquid collected at low points in the system where the liquid cannot be completely drained result in VOC emissions when the unit is opened to the atmosphere.
Purging is the process by which impurities are removed from the isopentane closed circuit. Contamination of the isopentane causes operating efficiency losses, so purging is performed on a regular basis. Vapors are passed through the VRMU and the isopentane is collected and returned to the system while other gases are removed. Fugitive losses of isopentane can occur due to failing seals, valves, flanges, etc.

Current permitted emission limits for the facility are provided in Table 1. In addition to isopentane emissions, there are particulate emissions from the cooling towers as well as NO_x, SO_2, benzene, and H_2S emissions from the steam turbine generator. There is a facility-wide annual benzene emission limit of 1.24 tons per year. Emissions from the emergency diesel generator are not explicitly limited in the ATC, however the engine is limited to 40 hours per year for maintenance and testing purposes.

Table 1. Facility-wide Isopentane Emissions Limits

		Emission Limits (lbs/day)					
Emission Source		PM_{10}	NO_x	SO_2	Isopentane	Benzene	H_2S
Steam Turbine Generator/RTO (normal operation)			11.66	5.03		2.33	2.74
Steam Turbine Generator during RTO maintenance						93.12	250
Steam Turbine Generator Condensate Line						0.75	18.73
OECs & MF Tanks (total)					99.6		
	Purging & Fugitive				59.6		
	Maintenance				40.0		
Cooling Towers		4.36					

*Isopentane emissions are calculated on a quarterly average basis.

Potential Emissions Summary for Proposed Development

Previous actual isopentane emissions, estimated potential emissions, as well as emission limits in PTO #1641B-5 for the Heber 1 facility are given below in Table 2. Note that the estimated emissions for the facility after the proposed development remain below the current permitted emission limits. The estimated emissions are reasonably conservative.

Table 2. Actual and Potential Emissions for Heber 1 Facility

	Facility Total Emissions	
Isopentane Emissions	lbs/day	tons/year
Actual Emissions (Q4 2016 – Q3 2018)	33.3	6.1
Estimated Potential Emissions	81.3	14.8
Emissions Increase	48.0	8.8
Current Permit Limit	99.6	
Proposed Permit Limit	99.0	

Air emissions of other pollutants will decrease due to the decommissioning of the steam turbine generator and associated units including the RTO, condensate line, and two cooling towers. The proposed updated emission limits for the facility are presented in Table 3.

Table 3. Heber 1 Proposed Updated Emissions Limits

		Emission Limits (lbs/day)	
Emissions Source		PM_{10}	Isopentane
OECs & MF Tanks (total)			99.0
Cooling Towers		3.72	

Would the project:

a)	Conflict with or obstruct implementation of the applicable air	☐	☐	☒	☐

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	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

quality plan?

a) Less Than Significant. The Proposed Project site is located within the ICAPCD, and the Heber 1 facility has an existing Permit to Operate (PTO) issued by ICAPCD. The expected changes to emissions from the proposed development include a reduction in emissions for all permitted pollutants except isopentane. The reduction in emissions is due to the decommissioning of the steam turbine generator and ancillary equipment including two cooling towers. Actual isopentane emissions from the OECs are expected to increase, but would remain within currently permitted limits. Current isopentane emissions at the Heber 1 site are approximately 33.3 lbs/day, and the modeled future emissions with the new facilities are estimated to be 81.3 lbs/day (Table 2). Under the existing PTO, the Heber 1 facility is authorized to emit up to 99.6 lbs/day of isopentane. The expected change in isopentane emissions with the new facilities would increase by approximately 48.0 lbs/day or 8.8 tons/year, however emissions would remain below the current authorized release amount. Therefore, the Proposed Project would not conflict with or obstruct the implementation of the ICAPCD air quality plan. Impacts would be less than significant.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard? ☐ ☐ ☒ ☐

b) Less Than Significant Impact. Significant adverse cumulative air quality impacts could occur if the Proposed Project resulted in a cumulatively considerable net increase of a criteria pollutant for which ICAPCD exceeds federal and state ambient air quality standards and has been designated as an area of non-attainment by the USEPA and/or CARB. The ICAPCD is a non-attainment area for ozone and fine particulate matter.

As noted in Table 2 above, isopentane emissions at the Proposed Project site are expected to increase by approximately 48.0 lbs/day for a project's estimated total of 81.3 lbs/day. Though, the isopentane levels would remain within the current authorized release amount and the expected changes to emissions from the Proposed Project include a reduction in emissions for all other permitted pollutants. Addtionally, emissions from construction equipment would be temporary and not exceed any air quality thresholds or significantly contribute to an existing regional nonattainment condition. Air quality measures would be implemented during construction of the Proposed Project to minimize the potential for fugitive dust and particulate matter releases. Through the application of these measures, the construction of the Project would limit visible dust emissions and particulate matter emissions to be in compliance with Imperial County's approach to minimizing these construction-related emissions. Ozone, which stems from the use of fuel-combusting equipment, would also be limited to the construction phase of the Project; vehicles and equipment would be turned off when not in use and not left idling to minimize unnecessary emissions.

Additionally, Air Pollution Control District (APDC) requested in comment letter dated January 17, 2020 that the applicant contact Mr. Emmanuel Sanchez, Enforcement Division Manager, to discuss the possible need for a Construction Dust Control Plan; the applicant must notify the Air District 10 days prior to the start of any construction activities. Applicant agreed to follow APDC requirements on response letter dated March 6, 2020. Impacts would be less than significant.

c) Expose sensitive receptors to substantial pollutants concentrations? ☐ ☐ ☒ ☐

c) Less Than Significant Impact. The Hazards Assessment identified two residences, housing an estimated six people, as sensitive receptors within the circle of influence of the Project Site. As discussed in Appendix G of the CUP Amendment Application, air emissions from the Heber 1 facility would be limited to isopentane, which is a VOC. The Hazards Assessment (Appendix H) identified no impact populations within the circle of influence associated with the Project Site. The Heber 1 site is permitted to release 99.6 lbs/day and the proposed Permit Limit is 99.0 lbs/day (Table 2). Isopentane emissions with the new facilities are estimated to increase, but the Proposed Project would not exceed the release limits established in the PTO; therefore, any exposure of pollutant concentrations would be less than significant.

d) Result in other emissions (such as those leading to odors adversely affecting a substantial number of people? ☐ ☐ ☒ ☐

d) Less Than Significant. Isopentane has a petroleum-like odor; however as noted previously, the Proposed Project isopentane emissions would remain within release limits established in the PTO (Table 2). The additional facilities onsite are not expected to produce a significant odor. Further, the Project site is located in an agrarian area that is not densely populated. During construction, diesel emissions from construction equipment may be sources of odor. These emissions would be temporary and minor based on the small number of heavy vehicles that would be required for Proposed Project construction. Therefore, Project-related odors would be limited to the temporary construction phase and would not result in a significant source of odor to a substantial number of people; impacts are less than significant.

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	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

IV. ***BIOLOGICAL RESOURCES*** ***Would the project:***

a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐

a) Potentially Significant Impacts Unless Mitigation Incorporated. A Chambers Group, Inc (Chambers Group) biologist conducted the general biological reconnaissance-level survey within the Proposed Project site in 2019. The survey documented the existing biological conditions, determined the potential for occurrence (PFO) of sensitive species, and identified potentially jurisdictional waters.

All plant species observed within the Proposed Project site were recorded. Vegetation communities within the Proposed Project site were identified and qualitatively described. Plant communities were determined in accordance with the Manual of California Vegetation, Second Edition (2009). Plant nomenclature follows that of The Jepson Manual (Baldwin et. al. 2012). A comprehensive list of the plant species observed during the survey is provided in Appendix B of the CUP Amendment Application.

All wildlife and wildlife signs observed and detected, including tracks, scat, carcasses, burrows, excavations, and vocalizations, were recorded. Additional survey time was spent in those habitats most likely to be utilized by wildlife (native vegetation, wildlife trails, etc.) or in habitats with the potential to support state- and/or federal-listed or otherwise sensitive species. Notes were made on the general habitat types, species observed, and the conditions of the Project site. A comprehensive list of the wildlife species observed during the survey is provided in Appendix B of the CUP Amendment Application.

Sensitive Vegetation Communities

Six vegetation communities were observed within and adjacent to the Proposed Project site: Sparse Disturbed habitat, Landscape/Ornamental vegetation, Developed lands, Bare Ground, Pavement, and Agricultural areas. A map showing the vegetation communities observed and other areas within the Proposed Project site is provided in Appendix A of the Biological Technical Report, Figure 5a, and the communities are described in the following subsections.

Current database searches (CDFW 2019, CNPSEI 2019, and USFWS 2019) resulted in a list of four federal- and/or state-listed threatened and endangered, rare, or Imperial Irrigation District (IID)-covered (collectively, "special status") plant species documented to occur within five miles of the Proposed Project site. After the literature review and the biological reconnaissance-level survey, it was determined that all four species were considered absent from the survey area based on the assessment of the various habitat types observed and subsequent lack of habitat suitability.
The following four plant species are considered Absent from the Proposed Project site due to lack of suitable habitat of the Proposed Project site:

- Chaparral sand-verbena (Abronia villosa var. aurita) –List 1B.1
- Gravel milk-vetch (Astragalus sabulonum) – List 2B.2
- Abrams' spurge (Euphorbia abramsiana) –List 2B.2
- California satintail (Imperata brevifolia) –List 2B.1

Sensitive Wildlife Species

A current database search (CDFW 2019 and USFWS 2019) resulted in a list of nine federal- and/or state-listed endangered or threatened, BCC, SSC, or IID-covered wildlife species known to occur in the vicinity of the Proposed Project site. After a literature review and the assessment of the various habitat types within the Proposed Project site, it was determined that five sensitive wildlife species are considered absent from the Proposed Project site, five species have a low PFO, two species have a moderate PFO, and no species have a high PFO, within the Proposed Project site. Factors used to determine PFO included the quality of habitat and the location of prior CNDDB records of occurrence.

The following five wildlife species are considered absent from the Proposed Project site due to lack of suitable habitat on the Proposed Project site:

- American badger (Taxidea taxus)- SSC
- Western yellow bat (Lasiurus xanthinus) – roosting - SSC
- Flat-tailed horned lizard (Phrnosoma macallii) – SSC, IID
- Northern leopard frog (Lithobates pipens) – SSC, IID
- Yellow warbler - nesting (Setophaga petechia) – BCC, SSC, IID

The following five wildlife species have a low PFO on the Proposed Project site due to low-quality habitat (e.g. Developed areas such as buildings and pipping) on the Proposed Project site:

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- Big free-tailed bat (Nyctinomops macrotis) – SSC, IID
- Pocketed free-tailed bat (Nyctinomops femorosaccus) – SSC, IID
- Western yellow bat (Lasiurus xanthinus) – foraging - SSC
- Yellow warbler - foraging – BCC, SSC, IID

The analysis of the CNDDB search and field survey resulted in two species with a moderate potential to occur on the Proposed Project site:

- Burrowing owl (Athene cunicularia) – nesting and foraging – SSC, IID
- Western mastiff bat (Eumops perotis) – foraging – SSC, IID

The analysis of the CNDDB search and field survey resulted in no species with a high PFO within the Proposed Project site. The Proposed Project is not anticipated to impact any sensitive or native habitat. All impacts are anticipated to occur to previously developed areas and site operations following the completion of the Proposed Project would be substantially similar to current operations. Considering there is moderate potential for two special-status species to occur onsite and unanticipated encounters could occur, impacts to sensitive and species-status species should be mitigated to less than significant with the incorporation of the following mitigation measures (MM):

MM-BIO-1: A qualified biological monitor should conduct an environmental awareness training prior to the start of any construction-related activities. Special focus should be made on sensitive animals that have a PFO within the Survey Area (e.g. burrowing owl and western mastiff bat).

MM-BIO-2: If construction or vegetation removal activities are to occur during the bird breeding season (February 15 – August 31) a nesting bird survey should be conducted prior to the start of construction or vegetation clearing activities. If active nests are found, an appropriate nest buffer shall be established by a qualified biologist until the nest fledges or fails naturally.

MM-BIO-3: Due to surrounding agricultural areas and low-quality but suitable habitat within the Survey Area a focused survey for burrowing owl is suggested before construction activities commence.

MM-BIO-4: If modification of the existing buildings is required a focused bat survey should be performed for western mastiff bat as this species may roost in building overhangs or within piping infrastructure located within the Survey Area.

b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☒	☐

b) Less Than Significant Impact. No jurisdictional features such as drainages or swales were observed within the Proposed Project area. Two irrigation canals, associated with the IID, are located along the eastern and southern edge of the Survey Area. Three retention ponds are located within the Proposed Project area; however, these are closed, man-made systems and for the purposes of this report are considered developed areas. Therefore, the Proposed Project would not result in substantial adverse effects to riparian habitats and impacts would be less than significant.

c)	Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐

c) Less Than Significant Impact. As described above, no jurisdictional features such as drainages or swales were observed within the Proposed Project area, any impact would be less than significant.

d)	Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐

d) Potentially Significant Impacts Unless Mitigation Incorporated. The Proposed Project site is highly-developed and no sensitive or native habitat would be impacted by the Proposed Project activities. With the implementation of MM-BIO-2, potential impacts would be less than significant.

e)	Conflict with any local policies or ordinance protecting biological resource, such as a tree preservation policy or	☐	☒	☐	☐

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	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

ordinance?

e) Potentially Significant Impacts Unless Mitigation Incorporated. The proposed project is not expected to conflict with any local policies or ordinance protecting biological resource. Implementation of mitigation measures MM-BIO-1 through MM-BIO-4 would reduce any potential impacts to rare, sensitive, or unique plants or wildlife to less than significant; therefore, this impact is potentially significant unless mitigation is incorporated.

f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☒	☐	☐

f) Potentially Significant Impacts Unless Mitigation Incorporated. The Proposed Project is located within the Imperial Irrigation District's (IID) Habitat Conservation Plan (HCP) area and the Desert Renewable Energy Conservation Plan (DRECP) area. Though with the implementation of mitigation measures MM-BIO-1 through MM-BIO-4, impacts to any potential impacts to rare, sensitive, or unique plants or wildlife would be reduced to less than significant; thus, this impact is potentially significant unless mitigation is incorporated.

V. *CULTURAL RESOURCES Would the project:*

a)	Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☐	☒

a) No Impact. A Phase I Cultural Resources Survey for the Proposed Project was prepared by Chambers Group, Inc (Chambers Group) in September 2019. A record search with the South Coast Information Center (SCIC) for the Proposed Project determined a total of 22 cultural resource studies have been conducted within one-half mile of the Proposed Project area, with 12 studies located inside the Proposed Project area. The previous surveys identified by the SCIC occurred between 11 and 43 years ago. The earliest studies were associated with proposed geothermal testing in the Heber region.

The records search identified one previously recorded cultural resource, a historic site, within one-half mile of the Proposed Project area, which is not located within the Proposed Project area. Chambers Group performed a reconnaissance level survey and identified no historic or prehistoric resources as part of the Proposed Project. No impacts would occur.

b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☐	☒

b) No Impact. As noted above, a Phase I Cultural Resources Survey identified no cultural resources, archeological or historical, within the Proposed Project area; therefore, there are no impacts associated with archeological resources.

c)	Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☒	☐

c) Less Than Significant Impact. There is no publicly available information indicating the that human remains may occur within the Proposed Project area; however, it remains possible to uncover human remains. If the discovery of human remains occurs during ground-disturbing activities, the following regulations must be followed. California State law (California Health and Safety Code 7050.5) and federal law and regulations (Archaeological Resources Protection Act [ARPA], 16 United States Code [U.S.C.] 470 and 43 Code of Federal Regulations, [CFR] 7, Native American Graves Protection and Repatriation Act [NAGPRA] 25 U.S.C. 3001 and 43 CFR 10, and Public Lands, Interior 43 CFR 8365.1-7) require a defined protocol if human remains are discovered in the state of California regardless if the remains are modern or archaeological. Upon discovery of human remains, all work within a minimum of 200 feet of the remains must cease immediately, and the County Coroner must be notified. The appropriate land manager/owner or the site shall also be notified of the discovery. If the human remains are determined by the Coroner to be prehistoric, the appropriate federal archaeologist must be called. The archaeologist will initiate the proper procedures under ARPA and/or NAGPRA. If the remains can be determined to be Native American, the steps as outlined in NAGPRA 43 CFR 10.6 Inadvertent Discoveries must be followed. Therefore, impacts would be less than significant.

VI. *ENERGY Would the project:*

a)	Result in potentially significant environmental impact due to	☐	☐	☒	☐

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	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

a) Less Than Significant Impact. Construction of the Proposed Project would result in the need for energy resources. The amount of energy resources required for the construction include those necessary to power a crane, boom truck, fork lift, man lift, haul trucks, and hand tools. This energy use would be minimal and temporary in nature, as the Project would be complete in 6 months. Additionally, once in operation, the new OEC units would not require significantly more energy resources than previous requirements for plant operation. This impact is less than significant.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency? ☐ ☐ ☒ ☐

b) Less Than Significant Impact. The County of Imperial prepared a Renewable Energy and Conservation Element (Element) that provides objectives in innovating renewable energy systems within the County. The Proposed Project would not conflict or obstruct a renewable energy or energy efficiency plan because implementation of the Project would be consistent with the Element and energy requirements would be substantially similar to current, existing conditions. Therefore, impacts would be less than significant regarding energy usage and renewable energy plans.

VII. *GEOLOGY AND SOILS Would the project:*

a) Directly or indirectly cause potential substantial adverse effects, including risk of loss, injury, or death involving: ☐ ☐ ☒ ☐

a) **Less Than Significant Impact**. The proposed project is located in a developed parcel and it is not expected to directly or indirectly cause potential substantial adverse effects, including risk of loss, injury, or death associated with geology and soils, provided that the project complies with applicable Codes and regulations including the current Title 24 standards of the California Building Code; therefore, less than significant impacts are expected.

1) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42? ☐ ☐ ☒ ☐

1) Less Than Significant Impact. A Geology and Soils evaluation was conducted by Ninyo & Moore to evaluate the potential risks associated with the geology and soils at the Proposed Project site. The evaluation was conducted through reviewing published and non-published reports, Ninyo & Moore's in-house datasets, aerial photographs, and geologic hazard assessments. Information from this evaluation will be included in Impact a) through Impact f).

Although all of southern California is prone to ground shaking associated with earthquake activity, and the Imperial Valley is one of the most tectonically active regions in the United States, the Proposed Project site is not located within an active Alquist-Priolo Earthquake Fault Zone. The Proposed Project site is approximately 6 miles to the west of the closest fault line, with two other faults located approximately 9 miles to the west and north respectively (Imperial County 1993b; DOC 2019b). Though, the entirety of the Proposed Project would be located within the existing Ormat Heber 1 facility footprint, and construction activities and modifications would occur on heavily disturbed ground. Additionally, design and construction of the new facilities would be required to comply with all seismic-safety development requirements, including the Title 24 standards of the current California Building Code. Therefore, implementation of the Proposed Project would result in a less than significant impact associated with rupture of a known earthquake fault.

2) Strong Seismic ground shaking? ☐ ☐ ☒ ☐

2) Less Than Significant Impact. As noted above in Impact a) 1), the Proposed Project site is subject to potential ground shaking due to nearby faults. Impacts associated with strong seismic ground shaking would be minimized due to compliance with existing building regulations. Design and construction of the new facilities would comply with all seismic-safety development requirements, including the Title 24 standards of the current California Building Code. A comprehensive geotechnical evaluation, including subsurface exploration and laboratory testing, should also be performed prior to design and construction of structural improvements. Therefore, implementation of the Proposed Project would result in a less than significant impact associated with strong seismic ground shaking.

3) Seismic-related ground failure, including liquefaction and seiche/tsunami? ☐ ☐ ☒ ☐

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	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

3) Less Than Significant Impact. The geology that makes up Imperial County includes young, unconsolidated sediments of the Salton Trough that are subject to failure during earthquakes, especially throughout the irrigated portions of Imperial Valley where the soil is generally saturated. Liquefaction, and related loss of foundation support, is a common hazard in these areas (Imperial County 1993b). The Proposed Project area is located within the irrigated portion of Imperial Valley; however, the Proposed Project site is currently heavily developed, and the proposed construction activities would occur within the existing Ormat Heber 1 facility footprint. Additionally, design and construction of the new facilities would comply with all seismic-safety development requirements, including the Title 24 standards of the current California Building Code.

The most likely location for a significant seiche to occur near the Proposed Project site is the Salton Sea, which is approximately 29 miles north of the Proposed Project site. While there have been a number of seismic events since the formation of the Salton Sea, no significant seiches have occurred to date (Imperial County 1993b). However, per the Geology and Soils Evaluation document for the Heber 1 Repower Project, based on the generally loose nature of the subsurface materials and shallow historic groundwater, the potential for liquefaction within sand layers in the alluvium is a design consideration; therefore, with these design implementations, impacts associated with seismic-related ground failure, including liquefaction and seiche/tsunami are less than significant.

4)	Landslides?	☐	☐	☒	☐

4) Less Than Significant Impact. The Proposed Project site is flat and is within an area categorized as having "nil" landslide activity in the Imperial County General Plan (Imperial County 1993b). Additionally, the Proposed Project site is currently heavily developed and the proposed construction activities would occur within the existing Ormat Heber 1 facility footprint. Therefore, implementation of the Proposed Project would result in less than significant impacts associated with landslides.

b)	Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐

b) Less Than Significant Impact. The Proposed Project site has been previously graded and is heavily developed. In addition, the Proposed Project site is flat, limiting the opportunity for rapid stormwater runoff that could exacerbate erosion potential and the Proposed Project would require the preparation of a Storm Water Pollution Prevention Plan (SWPPP) to identify best management practices (BMPs) to further reduce soil erosion during construction. Therefore, implementation of the Proposed Project would result in less than significant impacts associated with soil erosion or the loss of topsoil.

c)	Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or off-site landslides, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐

c) Less Than Significant Impact. As discussed in Impacts a) 1) through a) 3), the Proposed Project site is not located within an active or potentially active fault zone or in an area at risk of landslide and although the risk of liquification is present, the impact is less than significant (Imperial County 1993b). Moreover, all construction activities and modifications associated with the Proposed Project would occur within previously developed portions of the Ormat Heber 1 geothermal facility. However, per the proposed project Geotechnical Soils Report, the alluvial soils underlying the project site may be subject to static settlement or liquefaction during a nearby seismic event; with the implementations of all applicable regulations including the California Building Code, it is expected that the proposed Project would result in less than significant impacts associated with landslides, lateral spreading, subsidence, liquefaction, or collapse.

d)	Be located on expansive soil, as defined in the latest Uniform Building Code, creating substantial direct or indirect risk to life or property?	☐	☐	☒	☐

d) Less Than Significant Impact. Expansive soils are commonly associated with clay-rich soils that expand when water is added and shrink when they dry out. This continuous change in soil volume can cause structures built on this soil to move unevenly and crack. The soils underlaying the Proposed Project site are primarily silty clay loams or very fine sandy loams, which have the potential to be expansive (USDA 2019). Though, the Proposed Project site has been previously graded and is heavily developed and neither land use designation nor zoning would change as result of the implementation of the Proposed Project. Furthermore, construction would occur entirely within the existing footprint of the Ormat Heber 1 facility and facility activities would be substantially similar to current activities onsite. Additionally, compliance with all required regulations including the California Building Code would make impacts associated with expansive soils are less than significant.

e)	Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste	☐	☐	☐	☒

EEC ORIGINAL PKG

	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

water?

e) No Impact. The Proposed Project would not involve activities that would require the installation of septic tanks or alternative wastewater disposal systems. No impact would occur.

f)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

f) Potentially Significant Impact Unless Mitigation Incorporated. A Paleontological Report was prepared for the Proposed Project by Chambers Group, Inc. in September 2019.

The 2019 Paleontological Report included a comprehensive review of published and unpublished literature and museum collections records maintained by the San Diego Natural History Museum (SDNHM). The purpose of the literature review and museum records search was to identify the geologic units underlying the Proposed Project area and to determine whether previously recorded paleontological localities occur either within the Proposed Project boundaries or within the same geologic units elsewhere. Using the results of museum records search and literature review, the paleontological resource potential and Potential Fossil Yield Classification (PFYC) of geologic units within the Project area was recommended in accordance with the Society of Vertebrate Paleontology (2010).

As a result of the 2019 study, the late Pliocene- to Holocene-age Lake Cahuilla Beds geologic units underlying the Proposed Project area have a recommended paleontological sensitivity of high. Therefore, there is a potential for impacting scientifically significant vertebrate and invertebrate fossils as a result of Proposed Project development. Although a review of available online museum records indicated that no paleontological resources have been found within the Proposed Project area, geologic units underlying the Project area have been known to yield significant fossils nearby; previous grading and excavation work revealed Lake Cahuilla deposits to depths of 35 to 40 feet, with fossils found as shallow as 5 feet. Further, the Project area is highly disturbed and will not require any major grading or earthwork.

In general, the potential for a given project to result in adverse impacts to paleontological resources is directly proportional to the amount of ground disturbance associated with the Project. The Proposed Project entails the installation of two new Ormat Energy Converter Units and modification of two existing converters. Ground disturbing activities are anticipated and the likelihood of impacting fossils is related to both the type and extent of disturbance and the geologic unit in which the disturbance occurs. Ground disturbances are proposed along areas underlain by previously disturbed Lake Cahuilla deposits, which have proven to yield vertebrate and invertebrate remains throughout the western Colorado Desert, including Imperial County. Implementation of the mitigation measures below would reduce impacts associated with paleontological resources to a less than significant level and would also be consistent with other federal and local laws and regulations. This impact is less than significant with mitigation incorporated.

MM-PAL-1: All project-related ground disturbances that could potential impact the Lake Cahuilla Beds will be monitored by a qualified paleontological monitor on a full-time basis, as these geologic units are determined to have a high paleontological sensitivity. It is anticipated that much of the proposed project site would be covered with up to eight feet of previously filled land.

MM-PAL-2: A qualified paleontologist will be retained to supervise monitoring of construction excavations and to produce a Paleontological Monitoring and Mitigation Plan for the proposed project, which would include the identification of undisturbed locations of Lake Cahuilla Beds throughout the proposed project site. The plan should also identify areas to be spot checked where ground disturbance could exceed the depth of previously filled land. Paleontological resource monitoring will include inspection of exposed rock units during active excavations within sensitive geologic sediments. The monitor will have authority to temporarily divert grading away from exposed fossils and halt construction activities in the immediate vicinity in order to professionally and efficiently recover the fossil specimens and collect associated data. The qualified paleontologist will prepare progress reports to be filed with the client and the lead agency.

MM-PAL-3: At each fossil locality, field data forms will be used to record pertinent geologic data, stratigraphic sections will be measured, and appropriate sediment samples will be collected and submitted for analysis.

MM-PAL-4: Matrix sampling would be conducted to test for the presence of microfossils. Testing for microfossils would consist of screen-washing small samples (approximately 200 pounds) to determine if significant fossils are present. If microfossils are present, additional matrix samples will be collected (up to a maximum of 6,000 pounds per locality to ensure recovery of a scientifically significant microfossil sample).

MM-PAL-5: Recovered fossils will be prepared to the point of curation, identified by qualified experts, listed in a database to facilitate analysis, and reposited in a designated paleontological curation facility. The most likely repository is the SDNHM.

MM-PAL-6: The qualified paleontologist will prepare a final monitoring and mitigation report to be filed with the client, the lead agency, and the repository.

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	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

VIII. ***GREENHOUSE GAS EMISSION Would the project:***

a)	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐

a) Less Than Significant Impact. The construction of the Proposed Project involves diesel and gasoline fueled equipment, such as trucks, excavators, and powered hand tools. These tools emit greenhouse gases, but these emissions would be minor, temporary (approximately ten months), and well under the 10,000 CO_2e lb/day threshold established by AB 32.

b)	Conflict with an applicable plan or policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

b) Less Than Significant Impact. The Proposed Project would not contribute a significant amount of greenhouse gases, with most being emitted during the temporary construction phase. Long-term emissions from the Heber 1 facility would remain substantially similar to the existing emissions profile. Therefore, impacts would be less than significant.

IX. ***HAZARDS AND HAZARDOUS MATERIALS Would the project:***

a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
b)	Create a significant hazard to the public or the environment through reasonable foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐

a) and b) Potentially Significant Unless Mitigation Incorporated. Risk Management Professionals, Inc. prepared a Hazard Assessment (HA) for the Proposed Project in September 2019 and updated the report in November 2020 (Appendix H of the CUP Amendment Application). The Hazard Assessment focused on the U.S. Environmental Protection Agency (EPA) regulated substance isopentane; the Project proposes to install two additional 10,000-gallon above-ground storage tanks holding isopentane to utilize as the motive fluid to generate energy from the geothermal resource. The Heber 1 facility is classified as Prevention Program 3 and is regulated by the EPA's Risk Management Program for Chemical Accidental Release Prevention in accordance with the Code of Federal Regulations, Title 40, Chapter I, Subchapter C, Part 68, Subpart B Sections 68.20 to 68.42 (40 CFR §68.20 - 68.42) for isopentane, because it is held onsite in excess of 10,000 lbs. The HA assessed the potential effects and risks relating to the storage and use of the additional isopentane onsite. The assessment analyzed risk by identifying the worst-case scenarios and endpoints of concern (as defined by EPA RMP and 40 CFR 68.22) to then review the resulting vulnerability zone. The endpoints specified by the EPA Risk Management Program are:

- Overpressure of 1 pound per square inch (psi) for vapor cloud explosions
- Radiant heat of 5 kilowatts per square meter (kW/m2) for jet fires
- Lower flammability limit (LFL) for flash fires

Using these criteria, the HA assessed the worst-case scenario of a catastrophic failure of one of the two new 10,000-gallon isopentane tanks. As modeled in the HA, the worst-case scenario event would have an impact of up to 0.052 miles, or 276 feet. There are no residences within the 0.052-mile circle of concern, thus the estimated impacted population is zero. The model predicts in both the worst case scenario and the alternative scenario, an accidental release of isopentane is not expected to affect adjacent residents.

In addition, per comment letter dated January 14, 2021 Imperial County Fire Department has the following comments and/or requirements for the updated site plan and project description for Heber 1 Ormat Geothermal facility:

Information received is requesting (2) additional 10,000 gallon isopentane above ground storage tanks and will be installed near the new OEC units. Total amount of storage on site will be (4) 10,000 gallon tanks.
Isopentane is highly flammable liquid that fire behavior can be highly volatile and vapors may explode when mixed with air. The amount

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of propose storage and the locations rises concerns for Imperial County Fire Department, surrounding residents, and the surrounding community of Heber. The Emergency Response Guide:

Excerpt from ERG Guide 128 [Flammable Liquids (Water-Immiscible):
As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions.
LARGE SPILL: Consider initial downwind evacuation for at least 300 meters (1000 feet).
FIRE: If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.
(ERG, 2016)
Firefighting
Fire Extinguishing Agents Not to Be Used: Water may be ineffective
Fire Extinguishing Agents: Dry chemical, foam, or carbon dioxide (USCG, 1999)

These precautions are required to be followed for all incidents including fire involving hazardous materials. To adequately protect the Imperial County Fire Department staff, facility staff, and citizens of the community of Heber and Imperial County ICFD is requesting the following mitigations measures (MM):

MM-FIRE-1. A certified fire protection engineer survey and analysis of current and proposed fire suppression and detection equipment to be performed to evaluate the current systems performance and coverage of protection. Evaluate propose fire suppression and detection equipment in conjunction with existing equipment. A full report of findings must be provided to Imperial County Fire Department for review.

MM-FIRE-2. Isopentane leak or fire will require a large scale evacuation area and create a large scale hazardous material incident with a large operational zone. To minimize potential extremely dangerous condition to firefighters and hazardous material teams. Additional equipment may be required to adequately protect the first responders, staff and citizens in an emergency incident. This condition shall be discussed among the applicant and Imperial County Fire Chief prior to issuance of the permit for the project.

MM-FIRE-3. All isopentane above ground storage tanks shall be protected by approved automatic fire suppression equipment. All automatic fire suppression shall be installed and maintained to the current adapted fire code and regulation.

MM-FIRE-4. An approved automatic fire detection system shall be installed as per the California Fire Code. All fire detection systems shall be installed and maintained to the current adapted fire code and regulations.

MM-FIRE-5. Fire department access roads and gates will be in accordance with the current adapted fire code and the facility will maintain a Knox Box for access on site.

MM-FIRE-6. Compliance with all required sections of the fire code.

MM-FIRE-7. Applicant shall provide product containment area(s) for both product and water run-off in case of fire applications and retained for removal.

Imperial County Fire Department, Imperial County Planning and Development Service, and the applicant has reviewed and addressed multiple concerns in Appendix H for Hazards Assessment to help mitigate potential impacts and hazards associated with the project. Imperial County Fire Department reserves the right to comment and request additional requirements pertaining to this project regarding fire and life safety measures, California building and fire code, and National Fire Protection Association standards at a later time as we see necessary.

Lastly, per DTSC Imperial CUPA comment email dated January 9, 2020, when this retrofit is completed, applicant will need to update their CERS information if there are any changes in Hazardous Materials, Hazardous Waste, ASTs with petroleum, USTs, or CalARP thresholds, applicant will need to notify the DTSC Imperial CUPA at that time.

Compliance with ICFD conditions and DTSC Imperial CUPA requirements would bring any impact to less than significant.

c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐

c) Less than significant. There are no schools within a quarter-mile of the Proposed Project site. The closest school is Heber Dogwood Elementary School, which is approximately 2 miles north of the Project site. The HA does not identify any schools as public receptors within the modeled distance to endpoint. Therefore, impacts are considered less than significant.

d)	Be located on a site, which is included on a list of hazardous materials sites compiled pursuant to Government Code	☐	☐	☒	☐

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	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

d) Less than significant. The existing retention basins on the Proposed Project site are registered as a Land Disposal Site, which includes sites with solid and/or liquid wastes discharged to the land (SWRCB 2019). However, as described in the Project Description above, the retention basins are being treated as separate action under the discretion of the Colorado River Regional Water Quality Control Board. There are no other hazardous material sites pursuant to Government Code Section 65962.5 therefore, less than significant impacts would occur.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area? ☐ ☐ ☐ ☒

e) No Impact. The closest airport to the Proposed Project site is the Calexico International Airport (Airport), located approximately 3 miles south. The Project site is not within the Airport's area of influence, and therefore would not result in a safety hazard or excessive noise for people working in the Proposed Project area (Imperial County 1996). No impact would occur.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? ☐ ☐ ☒ ☐

f) Less than significant. The Proposed Project would be located within the existing Heber 1 site and would not interfere with any emergency response or evacuation plans. Construction equipment delivering large components of the proposed facilities may temporarily block Pitzer Road to ensure safe delivery of the components, but these blockages are expected to be temporary and are not expected to significantly impede traffic flow. Therefore, less than significant impacts to emergency response or evacuation plans would occur.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires? ☐ ☐ ☒ ☐

g) Less than significant. The Proposed Project site is in a Moderate severity zone in the Imperial County Local Responsibility Area and the closest Very High Fire Severity Zone (VHFSZ) is approximately 30 miles to the west (CAL FIRE 2007). Moreover, implementation of the Proposed Project at the existing Ormat Heber 1 facility would not result in hiring of additional employees or the construction of buildings that would increase public access to the site. Operations at the Heber 1 facility following completion of the Proposed Project would also remain substantially similar to current operations. The Project Site is not located in areas considered wildlands and is fully developed and the vast majority of the vicinity is cultivated farmlands and agricultural operations. Therefore, the Proposed Project would not increase or be subject to the risk of wildland fire, therefore, impacts are considered less than significant.

X. *HYDROLOGY AND WATER QUALITY Would the project:*

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality? ☐ ☐ ☒ ☐

a) Less Than Significant Impact. No known or reasonably expected surface water quality issues are anticipated to result from implementation of the Proposed Project; however, because ground-disturbing activities will occur in an area greater than one acre, a Storm Water Pollution Prevention Plan (SWPPP) will be developed that implements BMPs that sufficiently control degradation of water quality on site. In addition, the SWPPP would be implemented such that stormwater discharges would not adversely impact human health or the environment, nor contribute to any exceedances of any applicable water quality standard contained in the Water Quality Control Plan for the Colorado River Basin Region (RWQCB 2019).
In addition, per Imperial County Environmental Health Department (EHS) comment letter dated May 27, 2020, for any potential discharge of any processed water, the applicant must contact the Water Regional Board. Compliance with EHS and implementation of a SWPPP would bring impacts to less than significant.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? ☐ ☐ ☒ ☐

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	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

b) Less Than Significant Impact. Construction of the Proposed Project would not require the use of substantial amounts of water. Additionally, the Proposed Project is not in an area identified as a groundwater recharge area, and all construction activities would occur within the existing Heber 1 footprint. The Proposed Project is not expected result in decreased groundwater supplies and it is not expected to interfere with groundwater recharge; therefore, the Proposed Project would result in less than significant impacts associated with groundwater depletion.

c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	☐	☐	☒	☐
	(i) result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
	(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
	(iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or;	☐	☐	☒	☐
	(iv) impede or redirect flood flows?	☐	☐	☒	☐

c) i-iv) Less Than Significant Impact. As previously discussed, the construction of the Proposed Project would result in ground-disturbing activities in an area greater than one acre; therefore, a SWPPP would be required. The SWPPP would be developed to identify BMPs that sufficiently avoid any onsite or offsite erosion and runoff from areas proposed for ground disturbance. Operation of the Proposed Project would not have an impact of a stormwater drainage system as the Project would not result in an increase in the amount of runoff from the Proposed Project site. Impacts would, therefore, be less than significant.

d)	In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒

d) No Impact. As discussed previously, the Proposed Project is not located in an area at risk of tsunami or seiche (County of Imperial 1997). No impact would occur.

e)	Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

e) Less than significant. As discussed above, the Proposed Project would be compliant with all County, state, and federal regulations, including compliance with the NPDES permits with the implementation of BMPs; compliance with the referenced regulations would reduce any potential impact associated with a water quality control plan. Additionally, as discussed above, implementation of the Proposed Project would not require substantial water supplies. Less than significant impacts are expected.

XI. *LAND USE AND PLANNING Would the project:*

a)	Physically divide an established community?	☐	☐	☐	☒

a) No Impact. The Proposed Project would occur entirely within the footprint of the existing Ormat Heber 1 geothermal facility. The Proposed Project site is within a parcel established as built-up, urban land (DOC 2019a). Additionally, implementation of the Proposed Project would not result in a change in land use or zoning; therefore, construction activities implemented during the Project, would not physically divide an established community. No impact would occur.

b)	Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the	☐	☐	☒	☐

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	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

purpose of avoiding or mitigating an environmental effect?

b) Less than significant. The Proposed Project would not result in any changes to the existing land use at the site. The project site is zoned as A-2-G-SPA, for General Agriculture (A-2), Geothermal Overlay Zone (G), and in the Heber Specific Plan Area (SPA), which is under the County-designated Geothermal Overlay Zone (Imperial County 2015). Activities at the Proposed Project site would be substantially similar to existing activities onsite. Less than significant impacts are expected to occur.

XII. *MINERAL RESOURCES Would the project:*

a)	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒

a) No impact. Imperial County contains diverse mineral resources including gold, lime, gravel, gypsum, sand, clay, and stone. Mining areas occur throughout the County, but according to the Imperial County General Plan the Proposed Project site contains no mineral resources. Furthermore, there are no mining activities occurring within the vicinity of, or on, the Proposed Project site; therefore, no impact would occur (Imperial County 2016).

b)	Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

b) No impact. As noted above in Impact a), there is no potential for mineral resource extraction or other mining operations within or adjacent to the Proposed Project site. No impact would occur.

XIII. *NOISE*

This section describes the existing noise setting and potential noise and vibration effects from project implementation on the site and its surrounding area. Construction noise modeling was performed through use of the Roadway Construction Noise Model (RCNM) Version 1.1. The model output is provided in Appendix J of the CUP Amendment Application.

1.1.1 Environmental Setting

The Proposed Project site is located south of the town of Heber, in an unincorporated area of Imperial County. The primary sources of noise within the study area consists of noise generated from the existing Heber 1 Geothermal Plant as well as from vehicle noise Pitzer Road and train noise on the railroad located along the west side of the Proposed Project site.

County of Imperial Noise Standards

The General Plan Noise Element (County of Imperial, 2015) provides the applicable noise standards for the Proposed Project. The Noise Element limits the noise level from any noise generating property to 50 dBA between 7 a.m. and 10 p.m. and to 45 dBA between 10 p.m. and 7 a.m. at the nearest home.
The Noise Element exempts construction noise from these standards, provided construction activities occur between 7 a.m. and 7 p.m. Monday thru Friday and between 9 a.m. and 5 p.m. on Saturday and construction noise does not exceed 75 dBA Leq averaged over 8 hours.

a)	Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐

a) Less than Significant. The Proposed Project would include the replacing the existing steam turbine electrical generators with air cooled energy converter units as well as installation of new above ground storage tanks, a vapory recovery maintenance unit and a new emergency fire water pump. The proposed new equipment would be located on the south side of the existing facility, at the current location of the three water detention basins. Two of the three water detention basins are going to be filled in since they are utilized for the steam turbines that are being decommissioned as part of the Project, however the removal of the two retention basins would be analyzed as a separate project. Both construction and operation of the Proposed Project would have the potential to generate noise in excess of standards and have been analyzed separately below.

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Construction-Related Noise

Construction activities for the Proposed Project are anticipated to begin in April 2021 and take approximately 6 months to complete. Construction of OEC 1 and OEC 2 would be the initial phase of construction. Construction of OEC 11 and OEC 13 would occur in the last two months of construction. The construction equipment would include a crane, a boom truck, forklifts, man lifts, haul trucks and hand tools.

The General Plan Noise Element exempts construction activities from the applicable noise standards, provided that construction activities are limited to between 7 a.m. and 7 p.m. Monday thru Friday and between 9 a.m. and 5 p.m. on Saturday and do not exceed 75 dBA Leq at the nearby homes. All construction activities that have the potential to exceed noise ordinances would occur within the allowable times for construction.

In order to determine the construction noise impacts at the nearest home that is located as near as 900 feet east of the proposed construction activities, the construction equipment noise levels compiled by the Federal Highway Administration (FHWA) have been utilized according to Chambers Group. The FHWA compiled noise level data regarding the noise generating characteristics of several different types of construction equipment used during the Central Artery/Tunnel project in Boston. Table 4 below provides a list of the construction equipment that would be utilized during construction of the Proposed Project, along with the associated measured noise emissions and measured percentage of typical equipment use per day. From this acquired data, FHWA developed the Roadway Construction Noise Model (RCNM). The RCNM, has been used to calculate the construction equipment noise emission levels at the nearest home (see Appendix J of the CUP Amendment Application).

Table 4: Construction Equipment Noise Characteristics and Noise Levels at Nearest Home

Equipment	Acoustical Use Factor[1] (Percent)	Maximum Sound Level at 50 feet (dBA Lmax)	Maximum Sound Level at Nearest Home[2] (dBA Lmax)
Crane	16	81	55
Boom Truck (Flatbed Truck)	40	74	49
Forklift (Gradall)	40	83	58
Man Lift	20	75	50
Haul Truck (Dump Truck)	40	77	51
Hand Tools (Jackhammer)	20	89	64

1 Acoustical use factor is the percentage of time each piece of equipment is operational during a typical workday.

2 The nearest home is located as near as 900 feet to the east of the proposed construction activities.

Source: RCNM Version 1.1 (see Appendix J of the CUP Amendment Application).

Table 4 shows that a jackhammer would create the highest noise level of all anticipated equipment to be used during construction of the Proposed Project, with a maximum noise level of 64 dBA Lmax at the nearest home. The proposed construction activities would be below the County's 75 dBA noise standard at the nearest home. Therefore, through adherence to allowable construction times as detailed in the General Plan Noise Element, the construction activities for the Proposed Project would not create a substantial temporary increase in ambient noise levels that are in excess of applicable noise standards. Impacts would be less than significant.

Operation-Related Noise

The Proposed Project consists of installation and operation of the following noise producing equipment:

- OEC-1 – Two turbine combined cycle binary unit (includes a generator, two turbines, vaporizers, air-cooled condensers, preheaters and recuperators);
- OEC-2 – Single turbine binary unit (includes a generator, a turbine, vaporizers, air-cooled condenser, and preheaters);
- Air Coolers – Three 10-bay air coolers and one 14-bay air cooler (each bay includes a heat exchanger and large fan);
- OEC-11 Integrated Two-Level Unit (ITLU) – Conversion of OEC 13 and OEC 11 into a two turbine bottoming unit (new equipment includes replacement of one of the turbines with a new larger unit and will incorporate the OEC 13 condensers and decommission the rest of OEC-13);
- Evacuation Skid/Vapor Recovery Maintenance Unit (VRMU) – (includes a liquid motive fuel removal pump, a knock-out drum, a vacuum pump, a condenser, a tank, a pressure-controlled vent valve and activated carbon adsorption unit); and
- Emergency Fire Water Pump – Additional fire pump to service the new equipment.

The General Plan Noise Element (County of Imperial, 2015) limits the noise level from any noise generating property to 50 dBA between 7 a.m. and 10 p.m. and to 45 dBA between 10 p.m. and 7 a.m. at the nearest home.

According to the Project applicant the noise level created from OEC-1, OEC-2 and OEC-11 ITLU would not exceed 90 dB at one meter

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from any location of these units. Per Chambers Group, according to The Design of Quiet Air-Cooled Heat Exchangers (Hudson Products Corporation, 1993) air coolers produce a maximum noise level of 85 dBA at one meter from the units. The primary noise source for the VRMU would be the vacuum pump and according to Diaphragm Vacuum Pumps and Compressors Data Sheet (KNF, 2017) the proposed vacuum pump will create a noise level of 49 dB at one meter. Per Chambers Group, according to Firefighter Noise Exposure during training activities and general equipment use (National Institute of Health, 2013) an emergency fire pump creates a noise level of 85 dB at one meter.

Table 5 provided by Chambers Group shows the calculated noise levels from each noise source at the nearest home, based on a soft site attenuation rate of 7.5 dB per doubling of distance. The soft site attenuation rate was utilized to account for the agricultural fields located between the Project site and nearest home.

Table 5: Operational On-Site Noise Impacts to the Nearest Home

Noise Source	Reference Noise Measurement		Project Impacts at Nearest Home	
	Distance of Receptor to Source (feet)	Noise Level (dBA L_{eq})	Distance from Source to Home (feet)	Noise Level[1] (dBA L_{eq})
OEC-1	4	90	1,000	30
OEC-2	4	90	1,100	29
Air Cooler 1	4	85	1,100	24
Air Cooler 2	4	85	1,200	23
Air Cooler 3	4	85	1,100	24
Air Cooler 4	4	85	1,200	23
OEC-11 ITLU	4	90	1,300	27
VRMU	4	90	1,000	30
Emergency Fire Pump	4	85	1,000	25
			Combined Noise Level	**37**
			County Noise Standard (day/night)[2]	50/45
			Exceed County Standards (day/night)?	No/No

Notes:

[1] Project noise impacts calculated based on soft site noise propagation rates of 7.5 dB per doubling of distance per Chambers Group, Inc.

[2] From General Plan Noise Element.

The data provided in Table 5 shows that anticipated worst-case noise levels created from the simultaneous operation of the proposed equipment to be installed as part of the Proposed Project would create a noise level of 37 dBA Leq at the nearest home, which is within County's residential noise standards of 50 dB during the daytime and 45 dB during the nighttime. As such, operations-related onsite noise impacts to the nearby homes would be less than significant for the Proposed Project.

Accordingly, the Proposed Project would not expose persons to noise levels in excess of standards established by Imperial County.

b) Generation of excessive groundborne vibration or groundborne noise levels? ☐ ☐ ☒ ☐

b) Less than Significant Impact. Construction activities would require the operation of off-road equipment and trucks that are known sources of vibration. Construction activities may occur as near as 1000 feet from the nearest home.

Per Chambers Group, Caltrans guidance has been utilized to define the threshold of perception from transient sources at 0.25 inch-per-

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second peak particle velocity (PPV). Table 6 provided by Chambers Group shows the typical PPV produced from some common construction equipment.

Table 6: Typical Construction Equipment Vibration Emissions

Equipment	Peak Particle Velocity in inches per second at 25 feet	Vibration Level (L_v) at 25 feet
Loaded truck (off road)	0.076	86
Jackhammer	0.035	79

Notes: The equipment list provided by the applicant and the equipment list provided by the FTA were cross-referenced and the only equipment that would be used onsite that also create known vibration levels, include a loaded truck operating on dirt roads and a jackhammer.
Source: Chambers Group referencing Federal Transit Administration 2006.

From the list of equipment shown in Table 6, a loaded truck with a vibration level of 0.076 inch-per-second PPV would be the source of the highest vibration levels of all equipment utilized during construction activities for the Proposed Project. Based on typical propagation rates this would result in a vibration level of 0.001 inch-per-second PPV at the nearest home to construction activities (1,000 feet away). The construction-related vibration levels would be within the 0.25 inch-per-second PPV threshold detailed above. Construction-related vibration impacts would be less than significant.

The on-going operation of the Proposed Project would not result in the creation of any known vibration sources. Therefore, a less than significant vibration impact is anticipated from the operation of the Proposed Project.

Accordingly, the Proposed Project would not expose persons to excessive groundborne vibration or groundborne noise levels.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? ☐ ☐ ☐ ☒

c) No Impact. The Proposed Project site is not located within two miles of a public airport and is not in the vicinity of a private airstrip. The nearest airport is Calexico International Airport, which is located approximately 2.9 miles south of the Proposed Project site. The Project site is located outside of the 65 dBA CNEL noise contours of Calexico International Airport. The Proposed Project would not expose people residing or working in the surrounding area to excessive levels of airport-generated noise. As such, there would be no impact from airport and airstrip noise.

XIV. ***POPULATION AND HOUSING*** ***Would the project:***

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and business) or indirectly (for example, through extension of roads or other infrastructure)? ☐ ☐ ☐ ☒

a) No Impact. The Proposed Project site is within the existing Ormat Heber 1 geothermal facility footprint, which is established as built-up, urbanized land (DOC 2019a). Construction activities would not result in the generation of temporary construction jobs as construction activities would be completed by current Ormat employees. Therefore, there would be no resulting relocation of any population. The number of employees at the Ormat Heber 1 facility would not increase and activities at the Proposed Project site would be substantially similar to existing activities. Therefore, the Proposed Project would not induce population growth, causing no impact.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? ☐ ☐ ☐ ☒

b) No Impact. As described above in Impact a), the Proposed Project site is within the existing Ormat Heber 1 geothermal facility footprint, which is established as built-up, urbanized land (DOC 2019). The existing Ormat Heber 1 facility is completely developed and does not contain any housing units. All of the proposed construction activities would occur entirely within the footprint of the existing Ormat Heber 1 facility. As such, the Proposed Project would not displace a substantial number of existing housing units or people, necessitating the construction of replacement housing elsewhere. Therefore, no impact would occur.

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	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

XV. *PUBLIC SERVICES*

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: ☐ ☐ ☒ ☐

a) Less Than Significant Impact. The proposed project is not expected to result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services. It is expected that compliance with Imperial County Fire Department requirements would bring impacts to less than significant.

1) Fire Protection? ☐ ☐ ☒ ☐

1) Less Than Significant Impact. Considering that the existing environment is an operating geothermal energy plant, the Project would not significantly increase the demand for public services; although, additional fire response could be needed in the instance of a catastrophic event with an isopentane tank. A Hazard Assessment (Appendix H of the CUP Amendment Application) was prepared for the Project and concluded that the likelihood of a catastrophic event is highly unlikely. Additionally, compliance with Imperial County Fire Department conditions would bring any potentially significant impacts to less than significant.

2) Police Protection? ☐ ☐ ☐ ☒

3) Schools? ☐ ☐ ☐ ☒

4) Parks? ☐ ☐ ☐ ☒

5) Other Public Facilities? ☐ ☐ ☐ ☒

2-5) No Impact. As previously noted, the Proposed Project would not result in an increase in employees at the Ormat Heber 1 facility. Furthermore, the Proposed Project would not induce population growth in any way that could increase the demand on public services such as fire and police protection or other public facilities. The Proposed Project would not result in any changes to the existing land use at the site, which is designated for commercial, residential, industrial, and renewable energy land uses currently under the Heber Specific Plan Area (Imperial County 2015). Activities at the Proposed Project site would occur entirely within the existing Ormat Heber 1 facility footprint and would be substantially similar to existing activities onsite. Consequently, no impacts would occur.

XVI. *RECREATION*

a) Would the project increase the use of the existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? ☐ ☐ ☐ ☒

a) No Impact. The Proposed Project would not increase the number of employees, substantially alter existing industrial operations at the Ormat Heber 1 facility, or induce population growth in the surrounding area. The Proposed Project would not introduce features that would lead to the deterioration of recreational facilities through increased use. No impact would occur.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse effect on the environment? ☐ ☐ ☐ ☒

b) No Impact. No recreational facilities would be constructed during the implementation of the Proposed Project; therefore, there would be no impact.

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	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

XVII. ***TRANSPORTATION***

a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities? ☐ ☐ ☒ ☐

a) Less Than Significant Impact. Linscott Law & Greenspan Engineers prepared a Trip Generation Letter (Letter) for the Proposed Project in October 2019 (Appendix K of the CUP Amendment Application). The Letter is referenced in Impacts a) through d).

Per Linscott Law & Greenspan Engineers Trip Generation Letter, the Project will not generate any additional traffic upon full build-out. During the short-term interim construction period, up to 254 daily trips and a maximum of 22 total peak hour trips area calculated, which is fewer than the 800 daily trips or 200 peak hour trips described by the County criteria. According to the Trip Generation Letter, this level of traffic is unlikely to degrade any existing intersection below LOS C, and in any case, the effects of Project construction traffic is expected to be temporary.
Per the proposed project's Trip Generation Letter, given these Project characteristics and the estimated construction period trip generation, a traffic report would not be required. However, Linscott Law & Greenspan Engineers mentions that these general criteria are not complete or exhaustive and the Department of Public Works reserves the right to make the final decision on the need for additional traffic impact studies as a condition of development.

Additionally, per Caltrans comment letter dated January 28, 2020, Caltrans has the following comments:
The California Department of Transportation (Caltrans) has discretionary authority with respect to highways under its jurisdiction and may, upon application and if good cause appears, issue a special permit to operate or move a vehicle or combination vehicle or special mobile equipment of a size or weight of vehicle or load exceeding the maximum limitations specified in the California Vehicle Code. The Caltrans Transpiration Permits Issuance Branch is responsible for the issuance of these special transporation permits for oversize/overweight vehicles on the State Highway System. Additional information is provided online at: https://dot.ca.gov/programs/traffic-operations/transportation-permits.

A traffic Control Plan is to be submitted to Caltrans District 11, including the interchange at SR-111/ E. Jasper Road, at least 30 days prior to start of any construction. Traffic shall not be unreasonably delayed. The plan shall also outline suggested detours to use during closures, including routes and signage.

Potential impacts to the highway facilities (SR-111 and SR-86) and traveling public from the detour, demolition and other construction activities should be discussed and addressed before work begins. If the turbine engine that is transported is oversized, larger than the width on the highway, per se, then there may need to be a Caltrans encroachment permit required, such permit would need to be filled locally at the Caltrans District 11 office in San Diego. The transportation permit to haul heavy weight/loads can be obtained in Sacrament over the phone at Caltrans HQ office.

Therefore, per Trip Generation Letter and project's compliance with Caltrans any impacts are expected to be less than significant.

b) Would the project conflict or be inconsistent with the CEQA Guidelines section 15064.3, subdivision (b)? ☐ ☐ ☒ ☐

b) Less Than Significant Impact. As noted in Impact a), any increase in traffic would be short-term and temporary, and the traffic volumes generated by construction would be minor; therefore, the potential for the Proposed Project to cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system is not expected to be substantial provided the project complies with Caltrans requirements as per letter dated January 28, 2020. Impacts would be less than significant.

c) Substantially increases hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? ☐ ☐ ☒ ☐

c) No Impact. The Proposed Project does not include any alteration to the existing public road network and does not require the construction of access roads. All Proposed Project features would be constructed within the existing Heber 1 site and would not introduce any transportation hazards, design features, or incompatible uses with surrounding roadways. Any impacts are expected to be less than significant.

d) Result in inadequate emergency access? ☐ ☐ ☒ ☐

d) No Impact. All Proposed Project features would be located within the existing Heber 1 site and would not alter any public transit facilities. The construction of the Proposed Project would not involve blocking or restricting any access routes. The Project would not

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	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

interfere with emergency response plans or operations near the Proposed Project area. Any impacts are expected to be less than significant.

XVIII. *TRIBAL CULTURAL RESOURCES*

a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place or object with cultural value to a California Native American tribe, and that is: ☐ ☐ ☐ ☒

a) No impact. As stated previously under item V "Cultural Resources", the records search presented by Chambers Group, Inc. did not find historic or prehistoric resources in this area, therefore, the proposed project is not expected to cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place or object with cultural value to a California Native American tribe.

(i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as define in Public Resources Code Section 5020.1(k), or ☐ ☐ ☐ ☒

(i) No Impact. Chambers Group found that one previously recorded historic site was recorded within 0.5 mile of the Proposed Project site, though it is not located within the Project site. Activities surrounding the Proposed Project would be temporary and within the footprint of the Heber 1 facility, and the operations at the Heber 1 site following the completion of the Proposed Project would remain substantially similar to current operations.

(ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth is subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe. ☐ ☐ ☐ ☒

(ii) No Impact. In June 2019 Chambers Group requested that the Native American Heritage Commission (NAHC) conduct a search of its Sacred Lands File to determine if cultural resources significant to Native Americans have been recorded within the Proposed Project area and/or buffer area. Chambers Group received a response from NAHC stating that the search of its Sacred Lands File did not indicate the presence of Native American cultural resources within 0.5 mile of the Proposed Project area or surrounding vicinity. The NAHC provided a list of ten Native American tribal governments that may have knowledge of cultural resources near the project area, tribes were including during the Project's Request for review and comment letter, no comments were received. Additionally, the AB 52 Notice of Opportunity to consult on the proposed project letter was mailed via certified mail on January 8, 2020 to President Jordan D. Joaquin, from the Quechan Indian Tribe. On January 10, 2020 we received an email from the Quechan Historic Preservation Officer stating that they did not have comments on this project.

XIX. *UTILITIES AND SERVICE SYSTEMS Would the project:*

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction of which could cause significant environmental effects? ☐ ☐ ☒ ☐

a) Less than significant. Project construction is not expected to generate any wastewater and, according to response letter dated January 28, 2020, on November 18, 2019, the IID issued an Amendment No. 1 to the Amended and Restated Water Supply agreement to supply an additional 500 acre feet of water a year in addition to the 1,800 acre feet that was in the agreement for a total of 2,300

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acre feet of water a year, therefore, no additional water consumption is anticipated. Portable toilets would be brought onsite per California Code of Regulations, Title 8, Section 1526, Subchapter 4, Construction Safety Orders Article 3, General §1526, Toilets at Construction Jobsites and disposed of at the appropriate wastewater facility, resulting in no impact to RWQCB requirements. Heber 1 facility employees have permanent bathrooms in the existing facilities, and no new wastewater would be generated from the operation of the proposed facilities. As described previously, a SWPPP would be prepared to address stormwater drainage, although the Proposed Project does not include plans to construct new or modify drainage facilities. Therefore, the project would not result in any impacts to utilities that would cause a significant environmental effect. Any impact would be less than significant.

b) Have sufficient water supplies available to serve the project from existing and reasonably foreseeable future development during normal, dry and multiple dry years? ☐ ☐ ☒ ☐

b) Less than significant. As noted in Impact a), the Proposed Project would not require a significant amount of water. Water use associated with Heber 1 plant operations following the completion of the Project would be substantially similar to existing water usage onsite currently.

c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? ☐ ☐ ☐ ☒

c) No Impact. As noted in Impacts a) and b), the Proposed Project would not generate wastewater that would need to be treated by a wastewater treatment facility. Onsite wastewater needs will be accommodated by the use of portable toilets that would be removed from the site once construction is complete. No impact would occur.

d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals? ☐ ☐ ☒ ☐

d) Less than significant. Proposed Project construction waste generation would likely be limited to packaging for equipment and supplies, and construction personnel waste. No hazardous wastes would be generated as result of Project construction or operation. Operation of the proposed facilities would not generate any solid wastes. All construction wastes shall be disposed of at the appropriate receiving facility, and there are three active waste disposal facilities/landfills operating in Imperial County that can service the Proposed Project; Mesquite Regional Landfill is approximately 5 miles northwest , Republic Services Allied Imperial Landfill is approximately 10 miles northeast and the Salton City Landfill is approximately 60 miles northwest of the proposed project. Permits shall be acquired for solid waste disposal in accordance with County ordinances as applicable. Therefore, the Proposed Project is not expected violate any federal, state, or local solid wastes statutes or regulations. Impacts are considered less than significant.

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste? ☐ ☐ ☒ ☐

e) Less than significant. As described above, construction waste generation associated with the Proposed Project would likely be limited to packaging for equipment and supplies and construction personnel waste. All construction wastes would be disposed of at the appropriate receiving facility, and there are two active waste disposal facilities/landfills operating in Imperial County that can service the Proposed Project. A waste disposal permit would be acquired in accordance with County ordinances as applicable. Therefore, the Project would not violate any federal, state, or local solid wastes statutes or regulation and impacts are expected to be less than significant.

XX. *WILDFIRE*

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:

a) Substantially impair an adopted emergency response plan or emergency evacuation plan? ☐ ☐ ☒ ☐

a) Less Than Significant Impact. The Proposed Project site is in a Moderate severity zone in the Imperial County Local Responsibility Area and the closest Very High Fire Severity Zone (VHFSZ) is approximately 30 miles to the west (CAL FIRE 2007). Moreover, implementation of the Proposed Project at the existing Ormat Heber 1 facility would not result in hiring of additional employees and construction activities that exacerbate the risk of wildfires. Land use at the Proposed Project site would not change causing facility operations to remain substantially similar to existing operations following implementation of the Proposed Project. Although additional fire response could be needed in the instance of a catastrophic event with an isopentane tank, a Hazard Assessment (Appendix H of the CUP Amendment Application) was prepared for the Proposed Project and concluded that the likelihood of a catastrophic event is

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	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

highly unlikely. Additionally, the project shall comply with Hazards and Hazardous Materials Mitigation Measures MM-FIRE-1 to MM-FIRE-7. Therefore, potential impacts to public services are less than significant.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire? ☐ ☐ ☒ ☐

b) Less Than Significant Impact. In the Imperial County General Plan the County is characterized as mainly flat terrain with large temperature differentials that produce moderate winds (Imperial County 1993a). The Proposed Project site is in a Moderate severity zone and construction activities would not introduce features that exacerbate the risk of wildfires. Land use at the Proposed Project site would not change causing facility operations to remain substantially similar to existing operations following implementation of the Proposed Project. Tanks housing flammable isopentane would be installed as a result of the Proposed Project, but a HA was prepared for the Proposed Project and concluded that the likelihood of a catastrophic event related to isopentane is highly unlikely and as stated under item a) above, the project shall comply with mitigation measures MM-FIRE-1 to MM-FIRE-7. Therefore, the Proposed Project would lead to less than significant impact.

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment? ☐ ☐ ☒ ☐

c) Less Than Significant Impact. As mentioned above in Impact a) and Impact b), the Proposed Project site is not within a VHFSZ and construction activities would not introduce features that exacerbate the risk of wildfires. Additionally, land use on site would not change and Ormat Heber 1 facility operations would remain substantially similar to existing operations following implementation of the Proposed Project. Tanks housing flammable isopentane would be installed as a result of the Proposed Project, but a HA was prepared and mitigation measures MM-FIRE-1 to MM-FIRE-7 shall be incorporated for the Proposed Project and concluded that the likelihood of a catastrophic event related to an isopentane tank is highly unlikely. Impacts would be less than significant.

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes? ☐ ☐ ☒ ☐

d) Less Than Significant Impact. As mentioned in Impacts a) through c), the Proposed Project site is not within a VHFHSZ and implementation of the Proposed Project would not exacerbate wildfire risk or alter the drainage at the Proposed Project site. Additionally, land use on site would not change and facility operations would remain substantially similar to existing operations following implementation of the Proposed Project. Additionally, the Hazard Assessment identified no impacted populations in the effected area from a catastrophic event from an isopentane tank malfunction, the assessment concluded the catastrophic event is the worst case-scenario and highly unlikely. Implementation of the Proposed Project would expose people or structures to major risk associated with fire, thus impacts would be less than significant.

Note: Authority cited: Sections 21083 and 21083.05, Public Resources Code. Reference: Section 65088.4, Gov. Code; Sections 21080(c), 21080.1, 21080.3, 21083, 21083.05, 21083.3, 21093, 21094, 21095, and 21151, Public Resources Code; Sundstrom v. County of Mendocino,(1988) 202 Cal.App.3d 296; Leonoff v. Monterey Board of Supervisors, (1990) 222 Cal.App.3d 1337; Eureka Citizens for Responsible Govt. v. City of Eureka (2007) 147 Cal.App.4th 357; Protect the Historic Amador Waterways v. Amador Water Agency (2004) 116 Cal.App.4th at 1109; San Franciscans Upholding the Downtown Plan v. City and County of San Francisco (2002) 102 Cal.App.4th 656.

Revised 2009- CEQA
Revised 2011- ICPDS
Revised 2016 – ICPDS
Revised 2017 – ICPDS
Revised 2019 – ICPDS

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	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

SECTION 3
III. MANDATORY FINDINGS OF SIGNIFICANCE

The following are Mandatory Findings of Significance in accordance with Section 15065 of the CEQA Guidelines.

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, eliminate tribal cultural resources or eliminate important examples of the major periods of California history or prehistory?	☐	☑	☐	☐

a) As identified in Section IV of this IS, the Proposed Project has the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, and/or reduce the number or restrict the range of a rare or endangered plant or animal. However, the Proposed Project would implement MM-BIO-1 through MM-BIO-4 to reduce any potentially significant impacts to biological resources. Additionally, the Proposed Project was determined to result in less than significant impacts associated with California history or prehistory with the implementation of MM-PAL-1 through MM-PAL-6.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☑	☐	☐

b) CEQA requires lead agencies to consider the cumulative impacts of proposals under their review. Section 15355 of the State CEQA Guidelines defines cumulative impacts as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." A cumulative impact "consists of an impact which is created because of the combination of the project evaluated in the EIR together with other projects causing related impacts (Section 15130[a][1]).

c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☑	☐	☐

c) As identified in Section IX of this IS, the Proposed Project has the potential to result in significant or substantial adverse effects on humans. However, the Proposed Project would implement MM-FIRE-1 through MM-FIRE-7 to reduce any potentially significant impacts to hazard and hazardous materials.

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IV. PERSONS AND ORGANIZATIONS CONSULTED

This section identifies those persons who prepared or contributed to preparation of this document. This section is prepared in accordance with Section 15129 of the CEQA Guidelines.

A. COUNTY OF IMPERIAL

- Jim Minnick, Director of Planning & Development Services
- Michael Abraham, AICP, Assistant Director of Planning & Development Services
- Mariela Moran, Project Planner
- Imperial County Air Pollution Control District
- Department of Public Works
- Fire Department
- Ag Commissioner
- Environmental Health Services
- Sheriff's Office

B. OTHER AGENCIES/ORGANIZATIONS

- Imperial Irrigation District
- Caltrans

C. CONSULTANT

- Chambers Group, Inc.

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V. REFERENCES

CAL FIRE

2007 Draft Fire Hazard Severity Zones in LRA. Available at: https://osfm.fire.ca.gov/media/6682/fhszl06_1_map13.pdf

California Lighting Technology Center (CLTC)

2014 Outdoor Lighting. Available at: http://cltc.ucdavis.edu/sites/default/files/files/publication/2013-title-24-outdoor-lighting-guide-dec14_0.pdf

California Department of Conservation (DOC)

2016 Imperial County Williamson Act 2016/2017. Available Online at: ftp://ftp.consrv.ca.gov/pub/dlrp/wa/Imperial_County_w_16_17_WA.pdf

2019a California Important Farmland Finder. Available Online at: https://maps.conservation.ca.gov/DLRP/CIFF/

2019b Earthquake Zones of Required Investigation. Available Online at: https://maps.conservation.ca.gov/cgs/EQZApp/app/

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1993b General Plan – Seismic/Public Safety Element. Available at: http://www.icpds.com/CMS/Media/Seismic-and-Public-Safety-Element.pdf

1993a General Plan – Overview. Available at: http://www.icpds.com/CMS/Media/GENERAL-PLAN--(OVERVIEW).pdf

1996 Airport Land Use Compatibility Maps. Accessed October 2019. Available at: http://www.icpds.com/?pid=1195

2003 Heber Urban Plan

2008 General Plan – Circulation and Scenic Highways Element. Available at: http://icpds.com/CMS/Media/Circulation-Scenic-Highway-Element-(2008).pdf

2016 General Plan – Conservation and Open Space Element. Available at: http://www.icpds.com/CMS/Media/Conservation-&-Open-Space-Element-2016.pdf

2015 General Plan – Land Use Element. Available at: http://www.icpds.com/CMS/Media/Land-Use-Element-(2015).pdf

1998a Division 5: Zoning Areas Established. Available at: http://www.icpds.com/CMS/Media/TITLE-9-DIVISION-5-AMENDED-10-24-17.pdf

1998b Heber Area. Available at: http://www.icpds.com/CMS/Media/ZONE12-062915.pdf

Regional Water Quality Control Board (RWQCB)

2019 Water Quality Control Plan for the Colorado River Basin Region. Available at: https://www.waterboards.ca.gov/coloradoriver/water_issues/programs/basin_planning/docs/bp032014/r7_bp2019fullbp.pdf

SWRCB

2019 Geotracker Database. Accessed October 2019. Available at: https://geotracker.waterboards.ca.gov/

United States Department of Agriculture (USDA)

2019 Web Soil Survey. Available at: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

EEC ORIGINAL PKG

MITIGATED NEGATIVE DECLARATION – County of Imperial

The following Mitigated Negative Declaration is being circulated for public review in accordance with the California Environmental Quality Act Section 21091 and 21092 of the Public Resources Code.

Project Name: Heber 1 Repower Project

Project Applicant: Heber Geothermal Company / Ormat Nevada Inc.

Project Location: 895 Pitzer Road, Heber, CA

Description of Project: Ormat proposes to upgrade the existing Heber 1 geothermal facility, which is owned by the subsidiary Heber Field Company, by shutting down the dual-flash steam turbine generator, installing two new OECs (OEC 1 and OEC 2), reconfiguring two of the existing OECs (OEC 11 and OEC 13), install ancillary equipment and paving and/or replacing new access roads. These updates are referred to herein as the Proposed Project. OEC 1 and 2 combined would function as an Ormat Integrated Three-Level Unit (I3LU) and will use air cooling rather than water cooling for the motive fluid. OEC 11 and OEC 13 combined would function as an Integrated Two-Level Unit (ITLU) and will use the existing cooling tower. The proposed new setup is expected to be better suited to the current and expected future conditions of the geothermal resource than the steam turbine generator, improving efficiency of the operations.

Applicant is also proposing to modify the permitted water intake from 1,800 acre feet of irrigation water to the existing water intake of 2,300 acre feet of irrigation water. The purpose of the repower project is to improve efficiency of the operations and increase the net and gross generation to 52MW (net), 78.2 (gross) as initially requested under Conditional Use Permit #15-0013. This proposed project also proposes to extend the permitted life of Heber 1 to 30 years (2020-2050).

EEC ORIGINAL PKG

VI. FINDINGS

This is to advise that the County of Imperial, acting as the lead agency, has conducted an Initial Study to determine if the project may have a significant effect on the environmental and is proposing this Negative Declaration based upon the following findings:

☐ The Initial Study shows that there is no substantial evidence that the project may have a significant effect on the environment and a NEGATIVE DECLARATION will be prepared.

☐ The Initial Study identifies potentially significant effects but:

(1) Proposals made or agreed to by the applicant before this proposed Mitigated Negative Declaration was released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur.

(2) There is no substantial evidence before the agency that the project may have a significant effect on the environment.

(3) Mitigation measures are required to ensure all potentially significant impacts are reduced to levels of insignificance.

A NEGATIVE DECLARATION will be prepared.

If adopted, the Negative Declaration means that an Environmental Impact Report will not be required. Reasons to support this finding are included in the attached Initial Study. The project file and all related documents are available for review at the County of Imperial, Planning & Development Services Department, 801 Main Street, El Centro, CA 92243 (442) 265-1736.

NOTICE

The public is invited to comment on the proposed Negative Declaration during the review period.

2-11-2021 for

Date of Determination — Jim Minnick, Director of Planning & Development Services

The Applicant hereby acknowledges and accepts the results of the Environmental Evaluation Committee (EEC) and hereby agrees to implement all Mitigation Measures, if applicable, as outlined in the MMRP.

Applicant Signature — 2/11/21 Date

EEC ORIGINAL PKG

SECTION 4

VIII. RESPONSE TO COMMENTS

(ATTACH DOCUMENTS, IF ANY, HERE)

EEC ORIGINAL PKG

March 4, 2020

Ms. Mariela Moran
Imperial County Planning & Development Services
801 Main Street
El Centro, CA 92243

RE: Response to Request for Additional Information and Agency Comment Letters
Heber 1 Repower – CUP #19-0028

Dear Ms. Moran:

Heber Geothermal Company, a subsidiary of Ormat Nevada, Inc. (Ormat), submits this letter and additional information in response to an email dated January 8, 2020 with specific questions regarding the CUP application and project details. In addition, this letter also responds to additional comments received from various agencies forwarded via e-mail on January 10, 2020 and January 30, 2020.

CUP Comments

Comment #1 - *On item #1, according to County Assessor Office information the property is owned by the Heber Field Company. Please provide documentation for Ormat Nevada Inc. as property owner of this parcel.*

Response #1 – Heber Field Company, a subsidiary of Ormat Nevada, Inc., is the actual owner of the property as shown on the deed. This has been corrected on CUP application form and the deed is attached for reference.

Comment #2 - *On item #6, your project includes the installation of an OEC-11 ITLU; please provide a revised application to include APN 054-250-035.*

Response #2 – A revised CUP application is attached with both parcel numbers listed.

Comment #3 - *Provide a site plan that includes the proposed project property lines, proposed and existing structures, and include the distance from the proposed structures to the property lines.*

Response #3 – A revised site plan has been attached per CUP application requirements (including 20 hard copies). The project property lines will not change and all facilities will be within the existing parcels. In addition, an updated figure that better shows existing and proposed equipment is attached.

ORMAT NEVADA, INC.
6140 Plumas St, Reno, NV 89519, USA • +1-775-356-9029 • ormat.com

EEC ORIGINAL PKG

Comment #4 - *Water: Per CUP 15-0013, Permittee may use up to a total of 1,800 acre feet of irrigation water per year for thirty (30) years from Imperial Irrigation District. Please clarify if there are any proposed changes to the water usage.*

Response #4 – On November 18, 2019, the IID issued an Amendment No. 1 to the Amended and Restated Water Supply Agreement to supply an additional 500 acre feet of water per year in addition to the 1,800 acre feet that was in the agreement for a total of 2,300 acre feet per year. The purpose of this increase is the original operational process utilized flashes of geothermal brine to make steam, which made water condensate that was then used in the wet cooling tower. Changes to these existing facilities will no longer generate the extra water needed for the cooling towers. In 1985, the IID supplied 5,000 acre feet per year, so over time with equipment modifications and changes in the geothermal resource, water consumption has fluctuated. There will be no change to the existing water intake or supply system to accommodate this change.

Comment #5 - *Energy: Per CUP 15-0013, Permittee is authorized to operate a 47 MW (net) geothermal power plant. Please clarify if there are any proposed changes to the energy production. In addition, please provide the proposed project and the Heber 1 facility total output (MW) net and gross.*

Response #5 – The purpose of the repower project is to improve efficiency of the operations and bringing net and gross generation up to existing authorized levels. The CUP #19-0028 application did have an error in reporting approved net and gross output. Based on our records, the 2015 amendment to CUP No. 04-0024 to add OEC-14 added 16 gross MW to the existing 62.5 gross MW, which equated to bring the facility net output to 52MW. Although the final CUP permit (attached) does not specify the final modified MWs specifically, the application does detail this in the project description (attached). **Therefore, the repower project is not proposing to increase the authorized nameplate gross or net output: 52MW (net), 78.2 (gross).**

Department of Toxic Substances Control Comment Letter, January 9, 2020

Comment #1 - *When this retrofit is completed they need to update their CERS information if there are any changes in Hazardous Materials, Hazardous Waste, ASTs with petroleum, USTs, or CalARP thresholds, and they need to notify the DTSC Imperial CUPA at that time.*

Response #1 – Ormat will update the CERS information to include the additional motive fluid tanks and send a notification to the CUPA at that time.

EEC ORIGINAL PKG

Department of Transportation Letter, January 28, 2020

Comment #1 – *Traffic Control Plan/Hauling - The California Department of Transportation (Caltrans) has discretionary authority with respect to highways under its jurisdiction and may, upon application and if good cause appears, issue a special permit to operate or move a vehicle or combination of vehicles or special mobile equipment of a size or weight of vehicle or load exceeding the maximum limitations specified in the California Vehicle Code. The Caltrans Transportation Permits Issuance Branch is responsible for the issuance of these special transportation permits for oversize/overweight vehicles on the State Highway System.*

Response #1 – Ormat will determine with its contractors the need to submit an application for a special permit to operate well in advance of planned equipment mobilization and hauling of materials to the project site.

Comment #2 - *A Traffic Control Plan is to be submitted to Caltrans District 11, including the interchange at SR-111 / E. Jasper Road, at least 30 days prior to the start of any construction. Traffic shall not be unreasonably delayed. The plan shall also outline suggested detours to use during closures, including routes and signage. Potential impacts to the highway facilities (SR-111 and SR-86) and traveling public from the detour, demolition and other construction activities should be discussed and addressed before work begins.*

Response #2 – Ormat has contracted a traffic engineer to develop a Traffic Control Plan for the project and will submit the plan at least 30 days prior to construction and coordinate with Caltrans.

Imperial County Air Pollution Control District Letter, January 17, 2020

Comment #1 - *The Imperial County Air Pollution Control District ("Air District") would like to thank you for the opportunity to review Conditional Use Permit (CUP) 19-0028 and Initial Study 19-0033 (collectively called "Project"). The Project would remove from service the existing dual-flash steam turbine generator and install two new Ormat Energy Converters (OEC) geothermal power generation units. In addition, the OEC-11 and OEC-13 power generators will be reconfigured into a combined two- level unit called OEC-11. Additional equipment including motive fluid (isopentane) storage tanks, an evacuation skid/vapor recovery maintenance unit (VRMU), and a diesel engine for emergency use will be added to the facility. The Project will extend the permitted life of Heber 1 to 30 years (2020 through 2050). The Project location is located at 895 Pitzer Road in Heber, California (APN 054-250-036-000). The Project applicant is Ormat Nevada, Inc.*

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Response #1 – For the general project description, Ormat would like to clarify that an additional emergency diesel generator will not be added to the facility. The existing diesel generator is sufficient to support the repower project.

Comment #2 - *Upon review, the Air District requests that the applicant contact Mr. Emmanuel Sanchez, Enforcement Division Manager, to discuss the possible need for a Construction Dust Control Plan.*

Response #2 – Ormat will contract Mr. Sanchez to discuss the possible need for a Dust Control Plan.

Comment #3 - *Additionally, the applicant must notify the Air District 10 days prior to the start of any construction activities.*

Response #3 – Ormat will notify the APCD 10 days prior to the start of any construction activities.

Comment #4 - *Finally, the Air District requests a copy of the Draft CUP prior to recording.*

Response #4 – Ormat will work with the County and our consultants to ensure a complete Draft CUP application is ready for preliminary review by the APCD prior to recording.

Imperial Irrigation District Letter, January 23, 2020

Comment #1 - *For electrical service for the project, the applicant should be advised to contact Joel Lopez, IID Customer Project Development Planner, at (760) 482-3444 or e-mail Mr. Lopez at jflopez@iid.com to initiate the customer service application process. In addition to submitting a formal application (available for download at the IID website http://www.iid.com/home/showdocument?id=12923), the applicant will be required to submit a complete set of approved plans (including CAD files), project schedule, estimated in-service date, one-line diagram of facility, electrical loads, panel size, voltage, and the applicable fees, permits, easements and environmental compliance documentation pertaining to the provision of electrical service to the project. The applicant shall be responsible for all costs and mitigation measures related to providing electrical service to the project.*

Response #1 – No changes to electrical services are required as a part of the repower project. The existing Demand Agreement would not require modification.

EEC ORIGINAL PKG

Comment #2 - *IID facilities that may be impacted include the Daffodil Canal (the project site is located adjacent to and west of the Daffodil Canal), Daffodil Lateral 1 and Dogwood Canal. However, it appears that the expansion project will not affect IID's canals or laterals. If this should occur, the applicant will be required to contact IID Water Department Engineering Services section prior to final project design. IID Water Dept. ESS can be contacted at (760) 339-9265 for further information.*

Response #2 – The repower project will not affect IID's canals or laterals. No changes to the existing water intake are proposed.

Comment #3 - *The applicant may not use IID's canal or drain banks to access the project site. Any abandonment of easements or facilities will be approved by IID based on systems (irrigation, drainage, power, etc.) needs.*

Response #3 – The project site will be accessed by existing roads and access points and within existing easements.

Comment #4 - *Any construction or operation on IID property or within its existing and proposed right of way or easements including but not limited to: surface improvements such as proposed new streets, driveways, parking lots, landscape; and all water, sewer, storm water, or any other above ground or underground utilities; will require an encroachment permit, or encroachment agreement (depending on the circumstances). A copy of the IID encroachment permit application and instructions are available at the district website http://www.iid.com/departments/real estate. The IID Real Estate Section should be contacted at (760) 339-9239 for additional information regarding encroachment permits or agreements.*

Response #4 – No construction or operations are planned within existing easements or rights-of-way.

Comment #5 - *In addition to IID's recorded easements, IID claims, at a minimum, a prescriptive right of way to the toe of slope of all existing canals and drains. Where space is limited and depending upon the specifics of adjacent modifications, the IID may claim additional secondary easements/prescriptive rights of ways to ensure operation and maintenance of IID's facilities can be maintained and are not impacted and if impacted mitigated. Thus, IID should be consulted prior to the installation of any facilities adjacent to IID's facilities. Certain conditions may be placed on adjacent facilities to mitigate or avoid impacts to IID's facilities.*

Response #5 – It appears that the Daffodil Canal easement is the only easement that will have new facilities adjacent. Ormat will contact the IID Real Estate Department to see if an encroachment permit is needed.

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Comment #6 - *Any new, relocated, modified or reconstructed IID facilities required for and by the project (which can include but is not limited to electrical utility substations, electrical transmission and distribution lines, etc.) need to be included as part of the project's CEQA and/or NEPA documentation, environmental impact analysis and mitigation. Failure to do so will result in postponement of any construction and/or modification of IID facilities until such time as the environmental documentation is amended and environmental impacts are fully analyzed. Any and all mitigation necessary as a result of the construction, relocation and/or upgrade of IID facilities is the responsibility of the project proponent.*

Response #6 – Ormat will be submitting a material modification analysis to IID in the coming weeks, however, it is not anticipated that any new, relocated, modified or reconstructed IID facilities will be required since power generation will not change beyond what was previously analyzed by IID. Ormat will work with IID to expeditiously gain confirmation on the material modification as soon as possible so it will not delay the CEQA process.

Closing

Thank you for your quick response to our application. Please let me know if you have any questions or require additional information to deem the application complete and schedule the Environmental Evaluation Committee meeting.

Respectfully submitted,

Melissa R. Wendt
Director, Project Development

Enclosures:
1 – Updated CUP Application Form
2 – Land Deed
3 – Updated Site Plan (20 hard copies)
4 – 2015 CUP Amendment (Permit and Application)

EEC ORIGINAL PKG

CONDITIONAL USE PERMIT

I.C. PLANNING & DEVELOPMENT SERVICES DEPT.
801 Main Street, El Centro, CA 92243 (760) 482-4236

- APPLICANT MUST COMPLETE ALL NUMBERED (black) SPACES – Please type or print -

1. PROPERTY OWNER'S NAME HEBER FIELD COMPANY		EMAIL ADDRESS mwendt@ormat.com	
2. MAILING ADDRESS (Street / P O Box, City, State) 6140 PLUMAS STREET, RENO NV	ZIP CODE 89519	PHONE NUMBER 775-356-9029	
3. APPLICANT'S NAME HEBER GEOTHERMAL COMPANY / ORMAT NEVADA, INC.		EMAIL ADDRESS mwendt@ormat.com	
4. MAILING ADDRESS (Street / P O Box, City, State) 6140 PLUMAS STREET, RENO, NV	ZIP CODE 89519	PHONE NUMBER 775-356-9029	
4. ENGINEER'S NAME SHLOMI HUBERMAN	CA. LICENSE NO.	EMAIL ADDRESS Shuberman@ormat.com	
5. MAILING ADDRESS (Street / P O Box, City, State) 6140 PLUMAS STREET, RENO, NV	ZIP CODE 89519	PHONE NUMBER 775-356-9029	

6. ASSESSOR'S PARCEL NO. 054-250-035, 054-250-036	SIZE OF PROPERTY (in acres or square foot) 27 acres	ZONING (existing) A-2-G/SPA
7. PROPERTY (site) ADDRESS 875 PITZER ROAD		
8. GENERAL LOCATION (i.e. city, town, cross street) HEBER, CA		
9. LEGAL DESCRIPTION Track 44, Township 16 South, Range 14 East, SBBM		

PLEASE PROVIDE CLEAR & CONCISE INFORMATION (ATTACH SEPARATE SHEET IF NEEDED)

10. DESCRIBE PROPOSED USE OF PROPERTY (list and describe in detail) Facility refurbishment, equipment installation, removal of existing facilities? See attached.	
11. DESCRIBE CURRENT USE OF PROPERTY	MAJOR GEOTHERMAL POWER PLANT
12. DESCRIBE PROPOSED SEWER SYSTEM	No additional sewer service proposed
13. DESCRIBE PROPOSED WATER SYSTEM	No additional water system, same IID intake.
14. DESCRIBE PROPOSED FIRE PROTECTION SYSTEM	Expansion of existing fire system.
15. IS PROPOSED USE A BUSINESS? ☒ Yes ☐ No	IF YES, HOW MANY EMPLOYEES WILL BE AT THIS SITE? 30, 10-15 more during construction

I / WE THE LEGAL OWNER (S) OF THE ABOVE PROPERTY CERTIFY THAT THE INFORMATION SHOWN OR STATED HEREIN IS TRUE AND CORRECT.

Connie Stechman — 3-2-2020
Print Name — Date

Connie Stechman
Signature

Print Name — Date

Signature

REQUIRED SUPPORT DOCUMENTS

A. SITE PLAN
B. FEE
C. OTHER
D. OTHER

APPLICATION RECEIVED BY:		DATE		REVIEW / APPROVAL BY OTHER DEPT'S required.	
APPLICATION DEEMED COMPLETE BY:		DATE		☐ P. W.	
APPLICATION REJECTED BY:		DATE		☐ E. H. S.	
TENTATIVE HEARING BY:		DATE		☐ A. P. C. D.	
FINAL ACTION: ☐ APPROVED ☐ DENIED		DATE		☐ O. E. S.	
				☐	
				☐	

CUP #

EEC ORIGINAL PKG

WHEN RECORDED RETURN TO:

Ogden Energy Inc.
3211 Jermantown Rd.
Fairfax, VA 22030

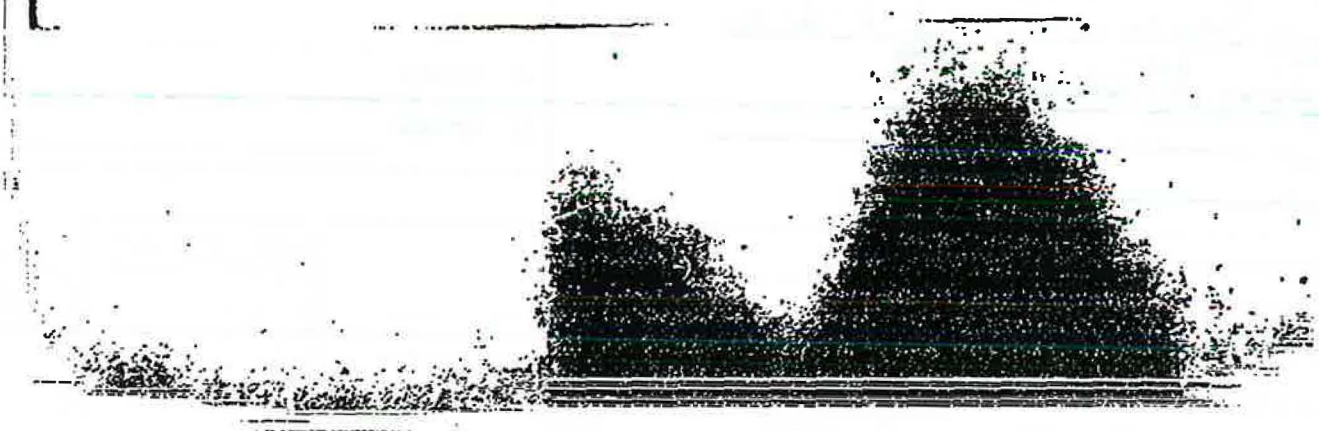
Attn: DALE DAILEADER

COUNTY RECORDER
BOOK 2018 PAGE 772
'30 JUN 16 PM 2 59
OFFICIAL RECORDS
IMPERIAL COUNTY, CA

RF	7
MC	1
IX	1
TF	2
NL	
PY	
PR	

QUITCLAIM DEED

Mail Tax Statement To Below Address Above



EEC ORIGINAL PKG

RECORDING REQUESTED BY:
AND WHEN RECORDED MAIL TO:
Pillsbury Madison & Sutro LLP
50 Fremont Street
San Francisco, CA 94105
Attn: Robert J. Spjut, Esq.

Tax Due: ~~$115.50~~ $16,643.00 RED
Computed on full value of property conveyed
Richard E. Dyer
Signature of Declarant UNINCORPORATED

QUITCLAIM DEED

FOR VALUABLE CONSIDERATION, the receipt and sufficiency of which are hereby acknowledged, U.S. TRUST COMPANY OF CALIFORNIA, N.A., not in its individual capacity but solely as owner trustee under that certain Trust Agreement dated as of December 18, 1991, between Aircraft Services Corporation, a Nevada corporation, and U.S. Trust Company of California, N.A. ("GRANTOR"), hereby grants to HEBER FIELD COMPANY, a California partnership, that certain real property located in the County of Imperial, State of California, APN 054-250-30-01, APN 054-250-35-01, and APN 054-250-36-01, as more particularly described in Exhibit A attached hereto and incorporated herein by this reference.

IN WITNESS WHEREOF, GRANTOR has caused its corporate name and seal to be affixed hereto and this Quitclaim Deed to be duly executed by its authorized officer on this ___ day of February, 2000.

U.S. TRUST COMPANY OF CALIFORNIA, N.A., not in its individual capacity but solely as owner trustee under that certain Trust Deed dated as of December 18, 1991 between Aircraft Services Corporation, a Nevada corporation, and U.S. Trust Company of California, N.A.

By: M Ciccarelli
Name: Margaret Ciccarelli
Title: AUTHORIZED SIGNATORY

MAIL TAX STATEMENTS TO:
Heber Field Company
c/o Richard E. Dyer
3211 Jermantown Road
Fairfax, VA 22030

1033789V1

EEC ORIGINAL PKG

State of New York)
) ss.
County of New York)

On this the 25th day of ~~December~~ April 2000, before me, Christine C. Collins, the undersigned Notary Public, personally appeared Margaret Ciemniewska, personally known to me or proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is subscribed to the within instrument, and acknowledged to me that she executed the same in her authorized capacity(ies), and that by her signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

Christine C. Collins
Notary's Signature

[redacted]

10533789V1

EEC ORIGINAL-PKG

A1-1:

COUNTY OF IMPERIAL, STATE OF CALIFORNIA

PARCEL 2 OF PARCEL MAP NO. M-1106, RECORDED NOVEMBER 28, 1978 IN BOOK 4 OF PARCEL MAPS AT PAGE 63 OF OFFICIAL RECORDS OF SAID COUNTY OF IMPERIAL, BEING A PORTION OF THE SOUTH HALF OF TRACT 44, TOWNSHIP 16 SOUTH, RANGE 14 EAST, SAN BERNARDINO MERIDIAN, ACCORDING TO THE UNITED STATES GOVERNMENT PLAT OF RE-SURVEY APPROVED FEBRUARY 6, 1909 AND ON FILE IN THE UNITED STATES LAND OFFICE.

EXCEPTING THEREFROM MINERALS, EITHER IN SOLID OR LIQUID FORM, GEOTHERMAL STEAM, NATURALLY HEATED WATER, AND THERMAL ENERGY BELOW A DEPTH OF 500 FEET FROM THE SURFACE OF SAID LAND, WITHOUT RIGHT OF SURFACE ENTRY, AS EXCEPTED IN THE DEED RECORDED SEPTEMBER 26, 1979 IN BOOK 1441 PAGE 935 OF OFFICIAL RECORDS.

EEC ORIGINAL PKG

A1-2,3:

COUNTY OF IMPERIAL, STATE OF CALIFORNIA

PARCEL 1:

THAT PORTION OF THE EAST HALF OF TRACT 45, TOWNSHIP 16 SOUTH, RANGE 14 EAST, SAN BERNARDINO MERIDIAN, ACCORDING TO THE OFFICIAL PLAT THEREOF, LYING EASTERLY OF THE EAST LINE OF THE SOUTHERN PACIFIC RAILROAD COMPANY RIGHT OF WAY, DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE NORTHERLY LINE OF SAID TRACT 45 AND SAID EASTERLY LINE OF THE SOUTHERN PACIFIC RAILROAD COMPANY RIGHT OF WAY, AS SAID INTERSECTION IS SHOWN ON RECORD OF SURVEY FILED IN BOOK 6, PAGES 32 AND 33 OF RECORDS OF SURVEY IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY; THENCE SOUTH 18° 48' 34" EAST, 46.49 FEET, MEASURED ALONG SAID EASTERLY LINE, TO A FOUND ONE INCH IRON PIPE WITH TAG, STAMPED RCE 13484 AND BEING THE TRUE POINT OF BEGINNING OF THIS DESCRIPTION; THENCE CONTINUING SOUTH 18° 48' 34" EAST, 1053.83 FEET TO A FOUND ONE INCH IRON PIPE, WITH TAG, STAMPED RCE 13484; THENCE NORTH 71° 10' 23" EAST, 345.93 FEET TO A FOUND ONE INCH IRON PIPE, WITH TAG, STAMPED RCE 13484; THENCE NORTH 18° 48' 21" WEST, 195.71 FEET TO THE BEGINNING OF A TANGENT CURVE, CONCAVE SOUTHWESTERLY AND HAVING A RADIUS OF 70 FEET; THENCE NORTHWESTERLY ALONG SAID CURVE, THROUGH A CENTRAL ANGLE ANGLE OF 45°, AN ARC DISTANCE OF 54.97 FEET; THENCE NORTH 63° 48' 21" WEST, 70.71 FEET TO THE BEGINNING OF A TANGENT CURVE, CONCAVE NORTHEASTERLY AND HAVING A RADIUS OF 70 FEET; THENCE NORTHWESTERLY ALONG SAID CURVE, THROUGH A CENTRAL ANGLE OF 45°, AN ARC DISTANCE OF 54.97 FEET; THENCE NORTH 18° 48' 21" WEST, 96.37 FEET TO THE BEGINNING OF A TANGENT CURVE, CONCAVE SOUTHEASTERLY AND HAVING A RADIUS OF 70 FEET; THENCE NORTHERLY AND NORTHEASTERLY ALONG SAID CURVE, THROUGH A CENTRAL OF 45°, AN ARC DISTANCE OF 54.97 FEET; THENCE NORTH 26° 11' 39" EAST, 70.71 FEET TO THE BEGINNING OF A TANGENT CURVE, CONCAVE NORTHWESTERLY AND HAVING A RADIUS OF 70 FEET; THENCE NORTHEASTERLY ALONG SAID CURVE, THROUGH A CENTRAL ANGLE OF 45°, AN ARC DISTANCE OF 54.97 FEET; THENCE NORTH 18° 48' 21" WEST, 187.71 FEET TO A FOUND ONE INCH IRON PIPE, WITH TAG, STAMPED RCE 28447; THENCE NORTH 89° 57' 59" WEST, 57.77 FEET; THENCE NORTH 45° 02' 12" WEST, 56.64 FEET; THENCE NORTH 0° 01' EAST, 189.76 FEET TO A FOUND ONE INCH IRON PIPE, WITH TAG, STAMPED RCE 28447; THENCE SOUTH 89° 58' 30" WEST, ALONG A LINE THAT IS PARALLEL WITH AND 44 FEET SOUTHERLY, MEASURED AT RIGHT ANGLES FROM SAID NORTHERLY LINE OF TRACT 45, A DISTANCE OF 318.67 FEET TO THE TRUE POINT OF BEGINNING.

EXCEPTING AND RESERVING THEREFROM, ALL URANIUM, THORIUM AND OTHER FISSIONABLE MATERIALS, GEOTHERMAL RIGHTS INCLUDING ALL WATER, BRINE, STEAM, SALT AND CHEMICALS, ALL OIL, GAS, PETROLEUM, ASPHALTUM, AND OTHER HYDROCARBON SUBSTANCES AND OTHER MINERALS AND MINERAL ORES OF EVERY KIND AND CHARACTER, WHETHER SIMILAR TO THOSE HEREIN SPECIFIED OR NOT, WITHIN OR UNDERLYING, OR WHICH MAY BE PRODUCED FROM THE HEREINABOVE DESCRIBED LAND, TOGETHER WITH THE RIGHT TO USE THAT PORTION ONLY OF SAID LAND WHICH UNDERLINES A PLANE PARALLEL TO AND FIVE HUNDRED (500) FEET BELOW THE PRESENT SURFACE OF SAID LAND, FOR THE PURPOSE OF PROSPECTING FOR, DEVELOPING AND/OR EXTRACTING SAID URANIUM, THORIUM, AND OTHER FISSIONABLE MATERIALS, WATER, BRINE, STEAM, SALT, CHEMICALS, OIL, GAS, PETROLEUM, ASPHALTUM, AND OTHER MINERAL OR HYDROCARBON SUBSTANCES FROM SAID LAND, AS RESERVED BY EL TORO LAND AND CATTLE CO., A CORPORATION, BY DEED RECORDED APRIL 21, 1960, IN BOOK 1450, PAGE 478 OF OFFICIAL RECORDS, IT BEING EXPRESSLY UNDERSTOOD AND AGREED THAT SAID EL TORO LAND AND CATTLE CO., ITS SUCCESSORS AND ASSIGNS, SHALL HAVE NO RIGHT TO ENTER UPON THE SURFACE OF SAID LAND, OR TO USE SAID LAND OR ANY PORTION THEREOF TO SAID DEPTH OF FIVE HUNDRED (500) FEET, FOR ANY PURPOSE WHATSOEVER.

EEC ORIGINAL PKG

PARCEL 2:

AN EASEMENT FOR ROADWAY PURPOSES AND INCIDENTAL PURPOSES, OVER, UPON AND ACROSS THAT PORTION OF THE EAST HALF OF TRACT 45, TOWNSHIP 16 SOUTH, RANGE 14 EAST, SAN BERNARDINO MERIDIAN, ACCORDING TO THE OFFICIAL PLAT THEREOF, LYING EASTERLY OF THE EAST LINE OF THE SOUTHERN PACIFIC RAILROAD COMPANY RIGHT OF WAY, DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE NORTHERLY LINE OF SAID TRACT 45 AND SAID EASTERLY LINE OF THE SOUTHERN PACIFIC RAILROAD COMPANY RIGHT OF WAY, AS SAID INTERSECTION IS SHOWN ON RECORD OF SURVEY FILED IN BOOK 6, PAGES 32 AND 33 OF RECORDS OF SURVEY IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY; THENCE SOUTH 18° 48' 34" EAST, 46.49 FEET, MEASURED ALONG SAID EASTERLY LINE, TO A FOUND ONE INCH IRON PIPE WITH TAG, STAMPED RCE 13484; THENCE NORTH 89° 58' 30" EAST, ALONG A LINE THAT IS PARALLEL WITH AND 44.00 FEET SOUTHERLY, MEASURED AT RIGHT ANGLES FROM SAID NORTHERLY LINE, A DISTANCE OF 318.67 FEET TO A FOUND ONE INCH IRON PIPE, WITH TAG, STAMPED RCE 28447; THENCE NORTH 0° 01' EAST, 9.00 FEET TO A LINE THAT IS PARALLEL WITH AND 35.00 FEET SOUTHERLY, MEASURED AT RIGHT ANGLES FROM SAID NORTHERLY LINE; THENCE ALONG SAID LAST MENTIONED PARALLEL LINE, NORTH 89° 58' 30" EAST, 628.37 FEET TO THE WESTERLY LINE OF THE LAND CONVEYED TO THE COUNTY OF IMPERIAL, BY DEED RECORDED IN BOOK 470, PAGE 507 OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY; THENCE NORTHERLY, ALONG SAID WESTERLY LINE, 35.00 FEET TO SAID NORTHERLY LINE OF TRACT 45; THENCE SOUTH 89° 58' 30" WEST, 961.55 FEET, MEASURED ALONG SAID NORTHERLY LINE, TO THE POINT OF BEGINNING.

PARCEL 3:

THAT PORTION OF THE EAST HALF OF TRACT 45, TOWNSHIP 16 SOUTH, RANGE 14 EAST, SAN BERNARDINO MERIDIAN, ACCORDING TO THE OFFICIAL PLAT THEREOF, LYING EASTERLY OF THE EAST LINE OF THE SOUTHERN PACIFIC RAILROAD COMPANY RIGHT OF WAY, DESCRIBED AS FOLLOWS:

BEGINNING AT A FOUND ONE INCH IRON PIPE, WITH TAG STAMPED RCE 28447, AT THE EASTERLY TERMINUS OF THAT CERTAIN COURSE IN PARCEL 1 DESCRIBED AS HAVING A BEARING AND DISTANCE OF "SOUTH 89° 58' 30" WEST, ALONG A LINE THAT IS PARALLEL WITH AND 44.00 FEET SOUTHERLY, MEASURED AT RIGHT ANGLES FROM SAID NORTHERLY LINE OF TRACT 45, 318.67 FEET" IN THAT CERTAIN GRANT DEED TO CHEVRON GEOTHERMAL COMPANY OF CALIFORNIA, RECORDED FEBRUARY 15, 1983 IN BOOK 1497, PAGE 712 OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID IMPERIAL COUNTY; THENCE ALONG THE EASTERLY BOUNDARY LINE OF SAID PARCEL 1, SOUTH 00° 01' 00" WEST, 109.76 FEET; THENCE SOUTH 45° 02' 12" EAST, 56.64 FEET; THENCE SOUTH 89° 57' 59" EAST, 57.77 FEET TO A FOUND ONE-INCH IRON PIPE, WITH TAG, STAMPED RCE 28447; THENCE LEAVING SAID EASTERLY BOUNDARY LINE AND ALONG THE NORTHERLY PROLONGATION OF THAT CERTAIN COURSE DESCRIBED AS "NORTH 18° 48' 21" WEST, 187.71 FEET" IN SAID PARCEL 1, NORTH 18° 48' 21" WEST, 65.24 FEET; THENCE NORTH 00° 00' 01" EAST, 97.09 FEET TO A LINE THAT IS PARALLEL WITH AND 35.00 FEET SOUTHERLY, MEASURED AT RIGHT ANGLES FROM THE NORTHERLY LINE OF SAID TRACT 45, SAID LAST MENTIONED PARALLEL LINE ALSO BEING THE SOUTHERLY LINE OF THE ROAD EASEMENT DESCRIBED AND DESIGNATED AS PARCEL 2 IN SAID CERTAIN GRANT DEED; THENCE ALONG SAID LAST MENTIONED PARALLEL LINE, SOUTH 89° 58' 30" WEST, 76.79 FEET; THENCE SOUTH 00° 01' 00" WEST, 9.00 FEET TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM, ALL URANIUM, THORIUM AND OTHER FISSIONABLE MATERIALS, GEOTHERMAL RIGHTS INCLUDING ALL WATER, BRINE, STEAM, SALT AND CHEMICALS, ALL OIL, GAS, PETROLEUM, ASPHALTUM, AND OTHER HYDROCARBON SUBSTANCES AND OTHER MINERALS AND MINERAL ORES OF EVERY KIND AND CHARACTER, WHETHER SIMILAR TO THOSE HEREIN SPECIFIED OR NOT, WITHIN OR UNDERLYING, OR WHICH MAY BE PRODUCED FROM THE HEREINBEFORE DESCRIBED LAND, TOGETHER WITH THE RIGHT TO USE THAT PORTION ONLY OF SAID LAND WHICH UNDERLINES A PLANE PARALLEL TO AND FIVE HUNDRED (500) FEET BELOW THE PRESENT SURFACE OF SAID LAND, FOR THE PURPOSE OF PROSPECTING FOR, DEVELOPING AND/OR EXTRACTING SAID URANIUM, THORIUM, AND OTHER FISSIONABLE MATERIALS, WATER, BRINE, STEAM, SALT, CHEMICALS, OIL, GAS, PETROLEUM,

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ASPHALTUM, AND OTHER MINERAL OR HYDROCARBON SUBSTANCES FROM SAID LAND, AS RESERVED BY EL TORO LAND AND CATTLE CO., A CORPORATION, BY DEED RECORDED APRIL 21, 1980, IN BOOK 1450, PAGE 478 OF OFFICIAL RECORDS, IT BEING EXPRESSLY UNDERSTOOD AND AGREED THAT SAID EL TORO LAND AND CATTLE CO., ITS SUCCESSORS AND ASSIGNS, SHALL HAVE NO RIGHT TO ENTER UPON THE SURFACE OF SAID LAND, OR TO USE SAID LAND OR ANY PORTION THEREOF TO SAID DEPTH OF FIVE HUNDRED (500) FEET, FOR ANY PURPOSE WHATSOEVER.

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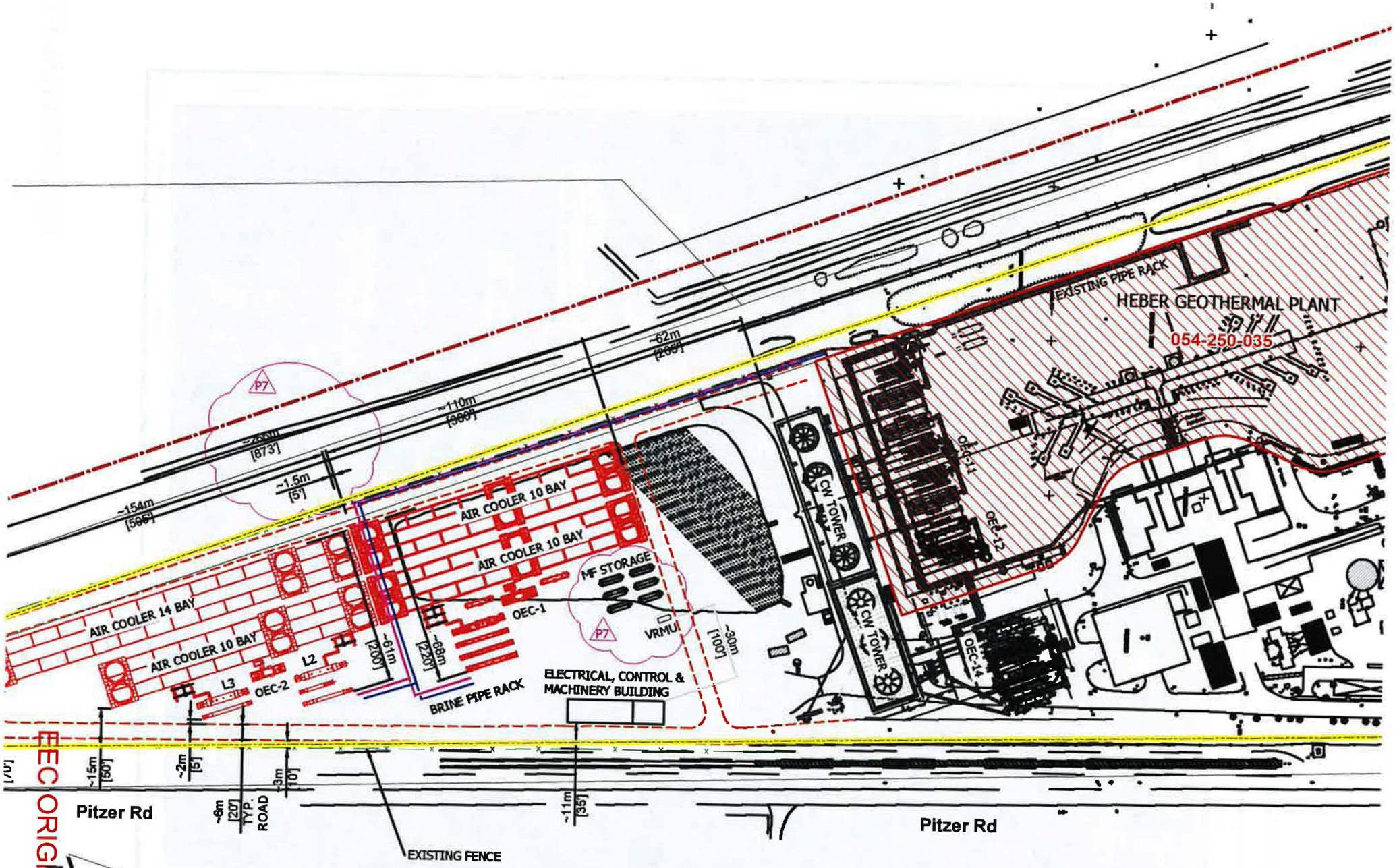
REMAIN.



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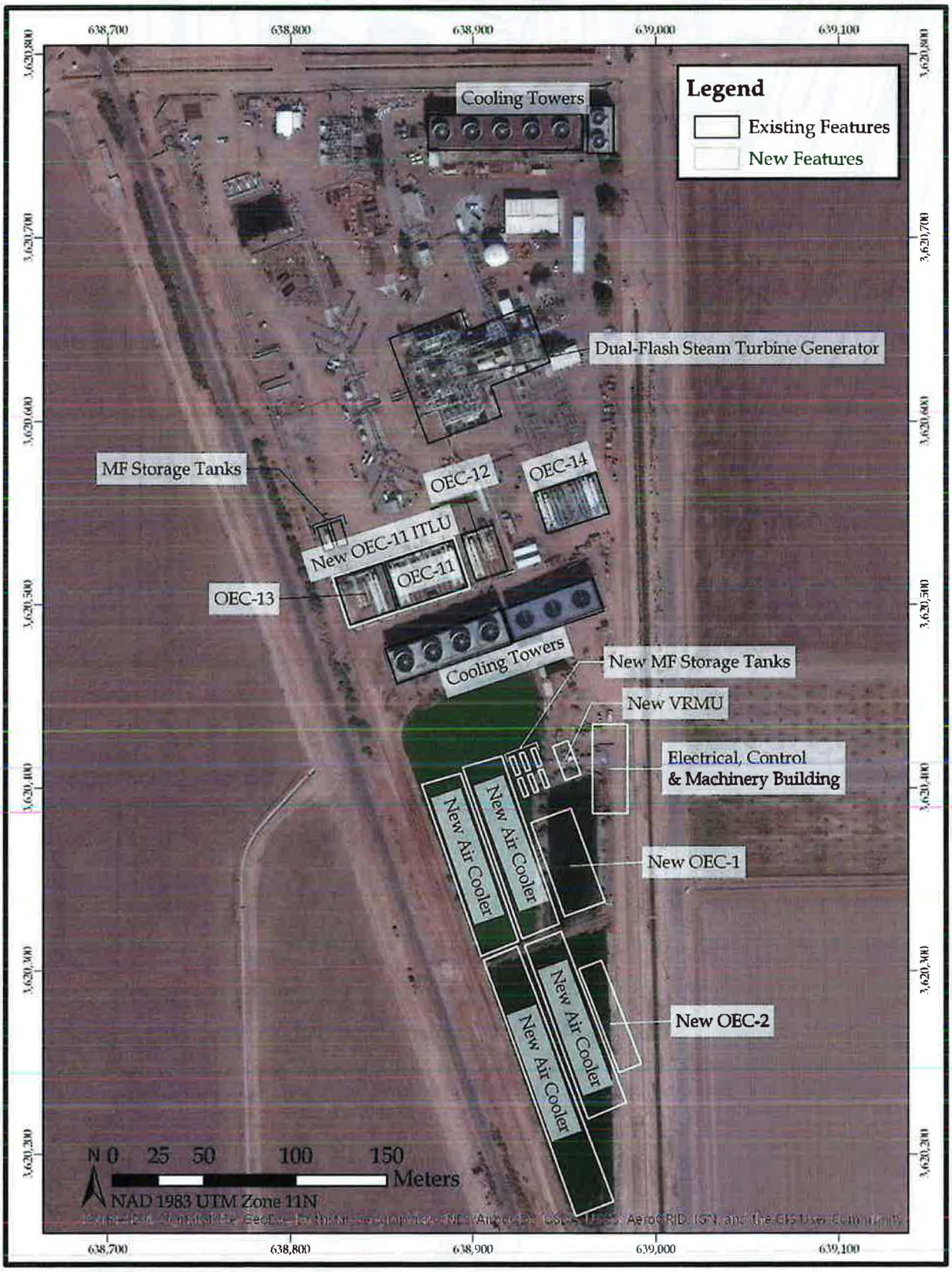
Company

R 45 16-14 20AC LY ELY OF RR

PREPARED BY:

CHAMBERS

Heber 1 Facility Layout Showing Existing and Proposed Equipment



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ORMAT®

May 7, 2015

Mr. Jim Minnick, Director
County of Imperial
Planning & Development Services Department
801 Main Street
El Centro, CA 92243-2811

Subject: Heber I CUP #04-0024 – Request to Amend

Dear Mr. Minnick:

Heber Geothermal Company, Ormat Nevada Inc., owns and operates the Heber 1 facility that includes the Heber I flash plant and the Gould 1 binary unit added in 2006. Ormat now proposes to add one (1) Ormat Energy Converter, also binary, and a 3 cell cooling tower adjacent to Gould 1. Modifications to both the brine and isopentane piping will also be required on Gould 1 to accommodate the new unit. This is being done to increase the efficiency and output of the plant. The enclosed CUP application to amend #04-0024 includes the following:

1. Completed CUP Application Form (1 copy and 4 CDs);
2. Project Description (1 copy and 4 CDs);
3. Site Plant (20 sets);
4. Completed ICPDSD Notice and General Indemnificaton forms: and
5. Ormat's check in the amount of $10,500 in payment of the CUP amendment application fee and deposit.

Thank you for your consideration. Please contact me at 775-336-0155 if you have any questions or need more information.

Sincerely,

Charlene L Wardlow

Charlene L. Wardlow
Director Business Development

Enclosures

cc: Sergio Cabanas, Ormat Nevada Inc.
Shlomi Huberman, Ormat Nevada Inc.

RECEIVED
MAY 08 2015
IMPERIAL COUNTY
PLANNING & DEVELOPMENT SERVICES

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CONDITIONAL USE PERMIT

I.C. PLANNING & DEVELOPMENT SERVICES DEPT.
801 Main Street, El Centro, CA 92243 (760) 482-4236

- APPLICANT MUST COMPLETE ALL NUMBERED (black) SPACES – Please type or print -

1. PROPERTY OWNER'S NAME Heber Geothermal Company		EMAIL ADDRESS cwardlow@ormat.com	
2. MAILING ADDRESS (Street / P O Box, City, State) 947 Dogwood Rd, Heber, CA		ZIP CODE 92249	PHONE NUMBER 775-356-9029
3. APPLICANT'S NAME Ormat Nevada Inc.		EMAIL ADDRESS Cwardlow@ormat.com	
4. MAILING ADDRESS (Street / P O Box, City, State) 6225 Neil Road, Reno NV		ZIP CODE 89511	PHONE NUMBER 775-356-9029
4. ENGINEER'S NAME NA	CA. LICENSE NO.	EMAIL ADDRESS NA	
5. MAILING ADDRESS (Street / P O Box, City, State) NA		ZIP CODE	PHONE NUMBER

6. ASSESSOR'S PARCEL NO. 054-250-36-01	SIZE OF PROPERTY (in acres or square foot) 20 acres	ZONING (existing) A-2-G/SPA
7. PROPERTY (site) ADDRESS 895 Pitzer Road, Heber, CA		
8. GENERAL LOCATION (i.e. city, town, cross street) South of Heber, Pitzer and Willoughby Roads		
9. LEGAL DESCRIPTION East half of tract 45, Township 16 South, Range 14 East		

PLEASE PROVIDE CLEAR & CONCISE INFORMATION (ATTACH SEPARATE SHEET IF NEEDED)

10. DESCRIBE PROPOSED USE OF PROPERTY (list and describe in detail)	expand existing geothermal facility with 2 new Ormat Energy Converters, an additional 3 cell cooling tower and modify one of the existing OECs at Gould 1
11. DESCRIBE CURRENT USE OF PROPERTY	Geothermal Power Plant
12. DESCRIBE PROPOSED SEWER SYSTEM	existing - no new
13. DESCRIBE PROPOSED WATER SYSTEM	existing - no new
14. DESCRIBE PROPOSED FIRE PROTECTION SYSTEM	gas detectors, flame detectors, sprinklers for

15. IS PROPOSED USE A BUSINESS? ☒ Yes ☐ No	IF YES, HOW MANY EMPLOYEES WILL BE AT THIS SITE? water no new employees

I / WE THE LEGAL OWNER (S) OF THE ABOVE PROPERTY CERTIFY THAT THE INFORMATION SHOWN OR STATED HEREIN IS TRUE AND CORRECT.

Connie Stechman — March 26, 2015
Print Name — Date
Connie Stechman
Signature

Print Name — Date

Signature

REQUIRED SUPPORT DOCUMENTS

A. SITE PLAN
B. FEE
C. OTHER
D. OTHER

APPLICATION RECEIVED BY:		DATE		REVIEW / APPROVAL BY OTHER DEPT'S required
APPLICATION DEEMED COMPLETE BY:		DATE		☐ P. W
APPLICATION REJECTED BY:		DATE		☐ E. H. S
TENTATIVE HEARING BY:		DATE		☐ A. P. C. D
FINAL ACTION ☐ APPROVED ☐ DENIED		DATE		☐ O E S ☐ ____ ☐ ____

CUP # ____

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HEBER 1 ENHANCEMENT

CUP #04-0024 AMENDMENT

May 2015

PROJECT DESCRIPTION

LOCATION

The proposed Heber Geothermal Company's (HGC) dual-flash power plant/Gould 1 binary unit enhancement project is located south of State Highway 86, east of Dogwood Road, north of Willoughby Road and southeast of the town site of Heber, California. The existing CUP #04-0024 added the Gould 1 Ormat Energy Converter to the project. The property is described as a portion of the East half of Tract 45, township 16 South, Range 14 East SBB&M, and further identified as Assessor's parcel number 054-250-36-01. HGC is owned and operated by Ormat Nevada Inc. The General Plan designates this area as "Agriculture," "Urban," and "Specific Plan Area." It is zoned "A-2-G/A-2-G-SPA," is considered consistent with the County's General Plan and the Geothermal/Transmission Element and the Land Use Ordinance.

THE PROJECT

Ormat proposes to expand the existing facility by adding one additional Ormat Energy Converter (OEC 14) that will add 16 gross megawatts to the existing 62.5 gross (~42 net) megawatt facility and modify one of the existing Gould 1 Ormat Energy Converter's (OEC 12). The new net will be approximately 52 megawatts. The existing flash plant, Heber 1, is not running at full load due to temperature declines in the resource over the 30 years of operations. The additional load will be used to increase the plant to the original installed capacity. Related equipment includes an additional storage tank for iso-pentane of (30,000 gallons), modification to the existing brine and iso-pentane piping at the existing OEC called Gould 1 and a new three cell cooling tower. Water will be supplied from the Imperial Irrigation District under the existing Water Supply Agreement for the facility of 1800 acre-feet per year.

Construction of OEC 14 will require approximately eight (8) weeks with an estimated 50-60 workers for excavation and pouring of the slab foundation for the OEC. The new OEC will utilize brine from the existing Heber 1 and Gould 1 units via existing pipelines except for piping modifications to connect the new OEC 14 to the Gould 1 OEC 12.

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1. POWER PLANT ADDITIONS FOR THE HEBER 1 FACILITY

The Heber 1 facility, owned by the Heber Geothermal Company a subsidiary of Ormat Nevada Inc., consists of the Heber 1 geothermal power plant, a 47 megawatt (net) dual flash facility built in 1985 under CUP # 9-80. Due to a limit in summertime output of only 37 MW a 5-cell replacement cooling tower was installed in February 2002 raising output in the summer by S MW to 44 MW. In 2004 in an amendment to CUP 9-80, CUP 04-0024, allowed for the addition of three Ormat Energy Converters (OECs) with an associated four cell cooling tower called Gould 1. Gould 1 initially generated 8-12 MW from the residual heat from the brine exiting the dual flash power plant and is called a bottoming unit. This brought the nameplate of the Heber 1 complex to S2 MW. Additionally, two new cells were added to the existing 5 cell cooling tower at Heber 1 to increase efficiency and reduce the need for Imperial Irrigation District canal water for the new tower at Gould 1. Gould 1 was built in 2006. Heber Geothermal Company proposes to make the following modifications to its Heber 1 Facilities:

- 1 - Ormat Energy Converter called OEC 14 (16 gross megawatts) immediately east of the Gould 1 unit (see enclosed pictures and drawings) including an additional storage tank for iso-pentane of (30,000 gallons).
- 3 - cell cooling tower adjacent to the existing 4 cell Gould 1 tower. Each cooling tower cell will be approximately 55 feet wide, 55 feet long and 50 feet tall. The additional cooling tower water flow will be approximately 36,000 gpm.
- Modifications to the existing brine and iso-pentane piping to connect OEC 14 to Gould 1's OEC 12 such as at the heat exchangers and pumps.

OEC 14 will utilize residual heat in the brine from the production wells which will be piped to the new OEC. This additional unit will add approximately 10 net megawatts to the Heber 1 complex bringing its salable output to 52 MW. The new cooling tower will utilize 36,000 gallons of water/minute and utilize water under the existing IID contract for the Heber 1 facility. The tower will be built to best available control technology (BACT) for circulating water flow drift loss (.0005) as well as water consumption. Cooling tower blowdown will be injected into one of the existing blowdown wells. There is no cooling blowdown discharge from the Heber 1 complex, no NPDES permit.

The new OEC will be inside the fence of the existing Heber 1 complex. No modifications are required to the existing Permit to Operate (#1641B-3) from the Imperial County Air Pollution Control District except to add the new cooling tower and OEC to the equipment list. The plant will continue to operate under the existing permit limit for fugitive emissions of iso-pentane. The cooling tower will meet the District's requirements for cooling tower drift.

Building and grading permits would be obtained from the Imperial County Building Department and/or Public Works Departments as required for the various phases of construction.

Construction equipment will be delivered via I-8 to Highway 111 south to Jasper Road and then west to Pitzer Road in order to enter the construction gate on the south end of Heber 1 and exit the main gate on Pitzer using all right turns. All of the construction will take place within the Heber 1 fence.

Visually the plant will not change except for the new equipment being closer to the fence on the eastside of the power plant. The picture below shows the current view from Pitzer Road.

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The fire prevention will be similar to the existing Gould 1 unit with flammable gas vapor and flame detectors at strategic locations around the new OEC and iso-pentane tank. It will be connected to the power plant computer system to detect a potentially hazardous situation. It will be connected to the existing fire suppression and fire water supply system. Water nozzles/monitors would be place around the new OEC.

The project would obtain required site access encroachment permits from the Imperial County Department of Public Works and would consider traffic safety in transporting equipment and materials to the project site. The Project would coordinate the movement of any required oversize loads on County roads with Public Works and/or on State highways with Caltrans and the California Highway Patrol.

The existing Heber 1 Emergency Response Plan, Hazardous Materials Business Plan, Risk Management Program, and any other plans applicable to the project will be updated as necessary.

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IMPERIAL COUNTY PLANNING & DEVELOPMENT SERVICES
GENERAL INDEMNIFICATION AGREEMENT

As part of this application, applicant and real party in interest, if different, agree to defend, indemnify, hold harmless, and release the County of Imperial ("County"), its agents, officers, attorneys, and employees (including consultants) from any claim, action, or proceeding brought against any of them, the purpose of which is to attack, set aside, void, or annul the approval of this application or adoption of the environmental document which accompanies it. This indemnification obligation shall include, but not be limited to, damages, costs, expenses, attorney fees, or expert witness fees that may be asserted by any person or entity, including the applicant, arising out of or in connection with the approval of this application, whether or not there is concurrent negligence on the part of the County, its agents, officers, attorneys, or employees (including consultants).

If any claim, action, or proceeding is brought against the County, its agents, officers, attorneys, or employees (including consultants), to attack, set aside, void, or annul the approval of the application or adoption of the environmental document which accompanies it, then the following procedures shall apply:

1. The Planning Director shall promptly notify the County Board of Supervisors of any claim, action or proceeding brought by an applicant challenging the County's action. The County, its agents, attorneys and employees (including consultants) shall fully cooperate in the defense of that action.

2. The County shall have final determination on how to best defend the case and may defend it with in-house counsel, or by retaining outside counsel. In either case applicant shall be fully responsible for all costs incurred. Applicant may request to provide his or her own counsel to defend the case, however prior written approval of the County shall be obtained, and said independent counsel shall work with County Counsel to provide a joint defense.

Executed at Reno Nevada ~~California~~ on March 26, 2015

Project Name: Heber 1 Expansion Project ID # CUP 04-0024

APPLICANT	***REAL PARTY IN INTEREST*** (If different from Applicant)
Name: Ormat Nevada Inc.	Name _____
By Connie Stechman	By _____
Title Assistant Secretary	Title _____
Mailing Address:	Mailing Address:
6225 Neil Road	_____
Reno, NV 89511	_____
_____	_____

ACCEPTED/RECEIVED BY _____ Date _____

PROJECT ID NO _____ APN ___-___-___

lh /S /forms_lists/general indemnification form

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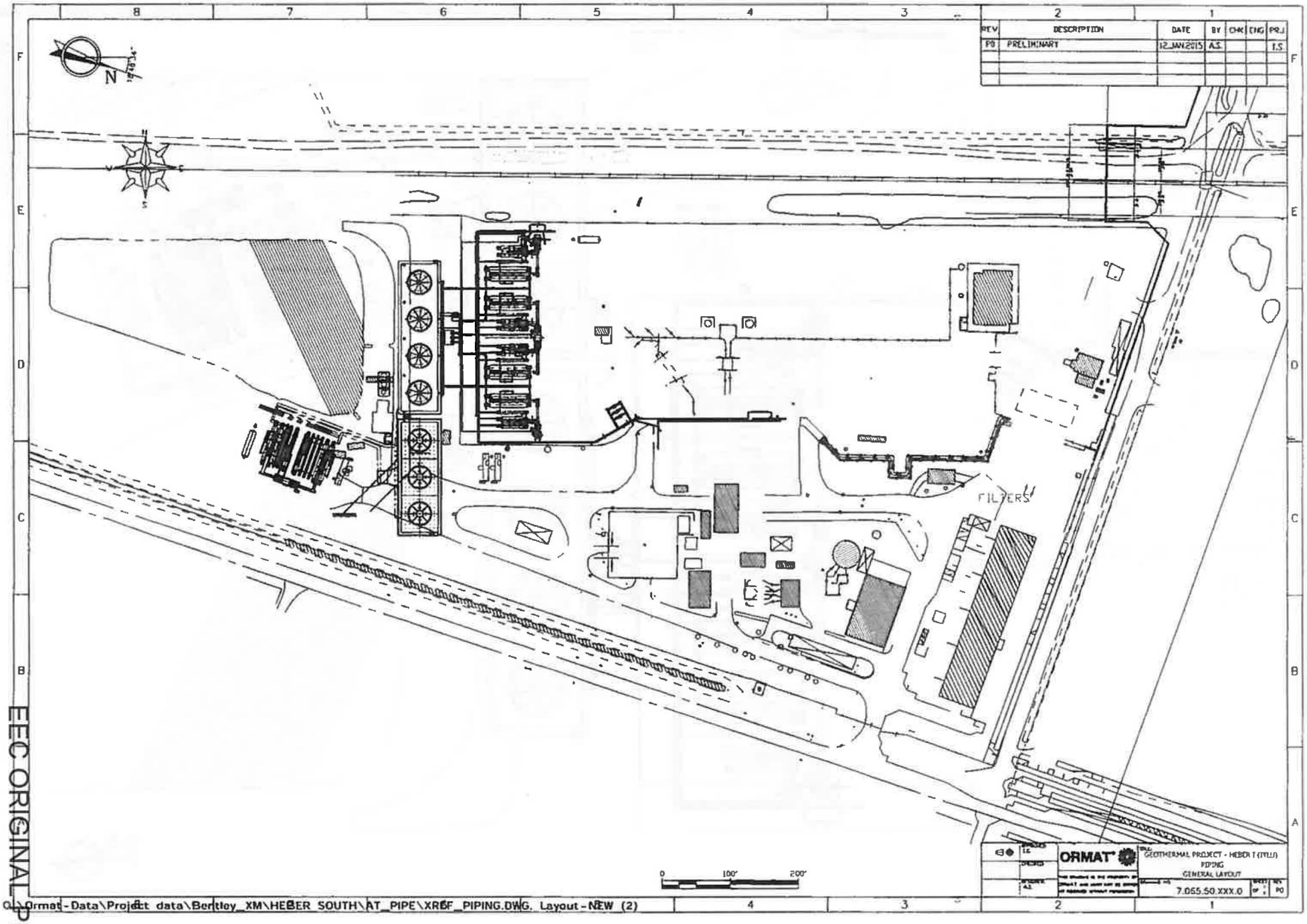

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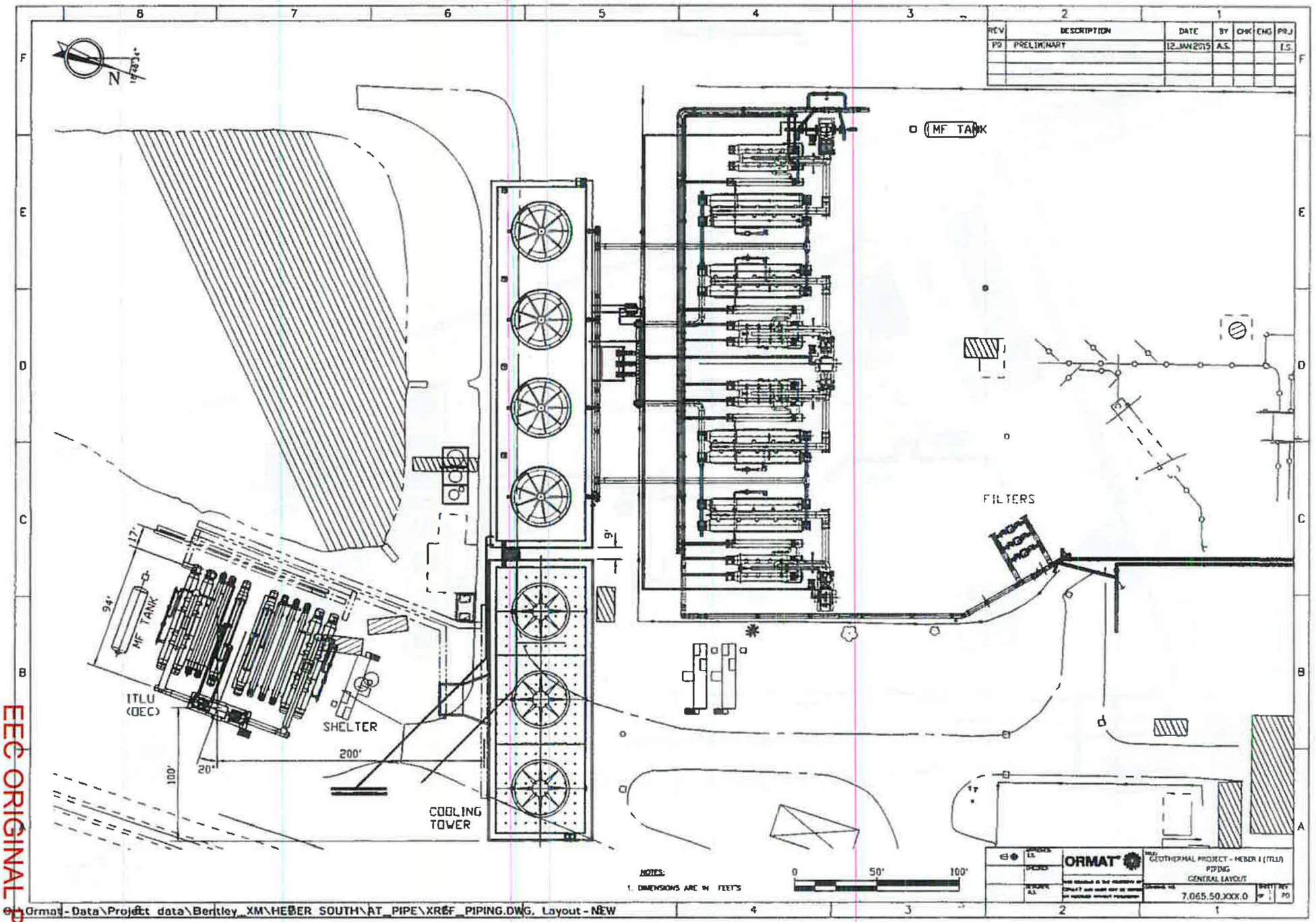

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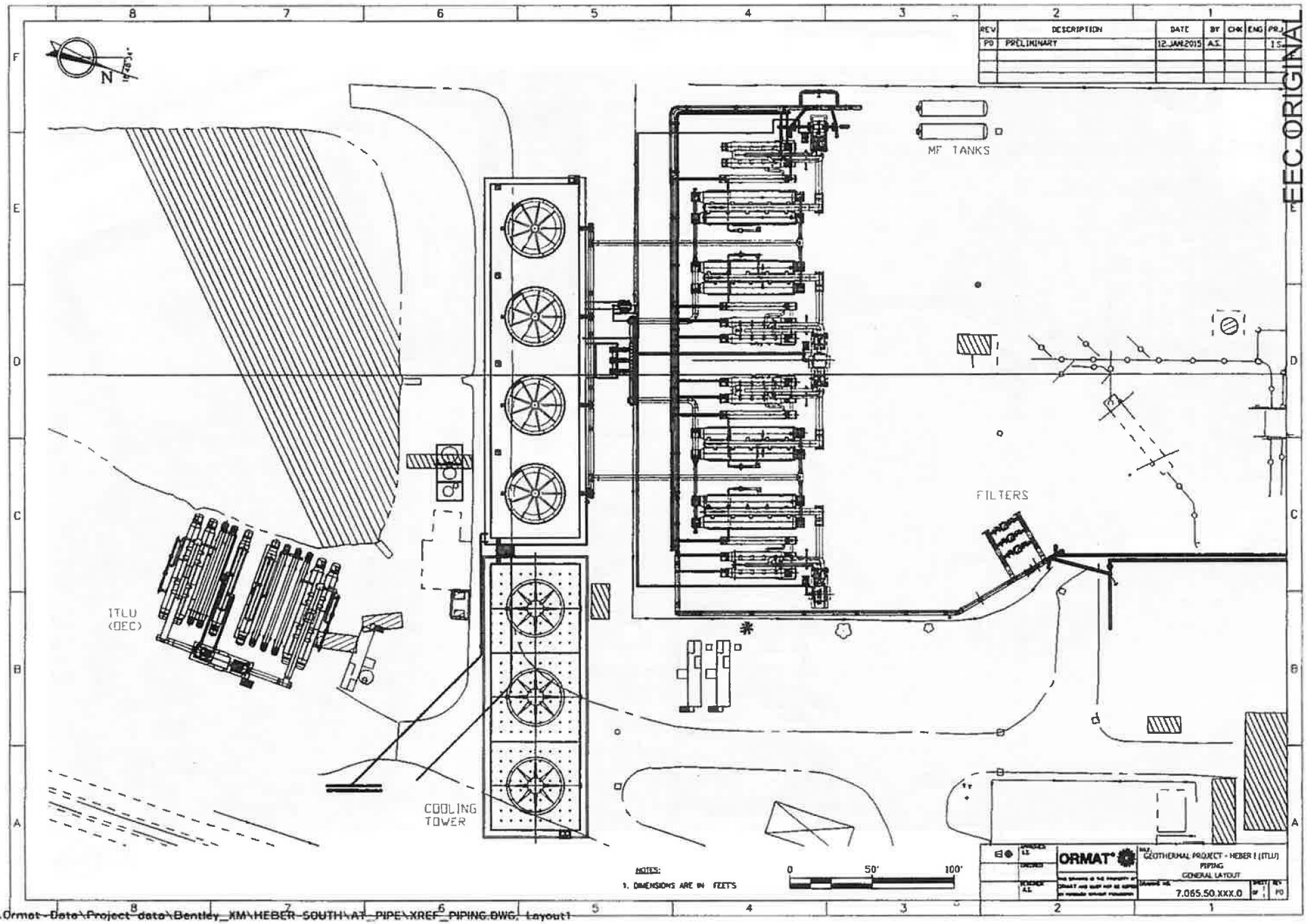

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REV	DESCRIPTION	DATE	BY	CHK	ENG	PRJ
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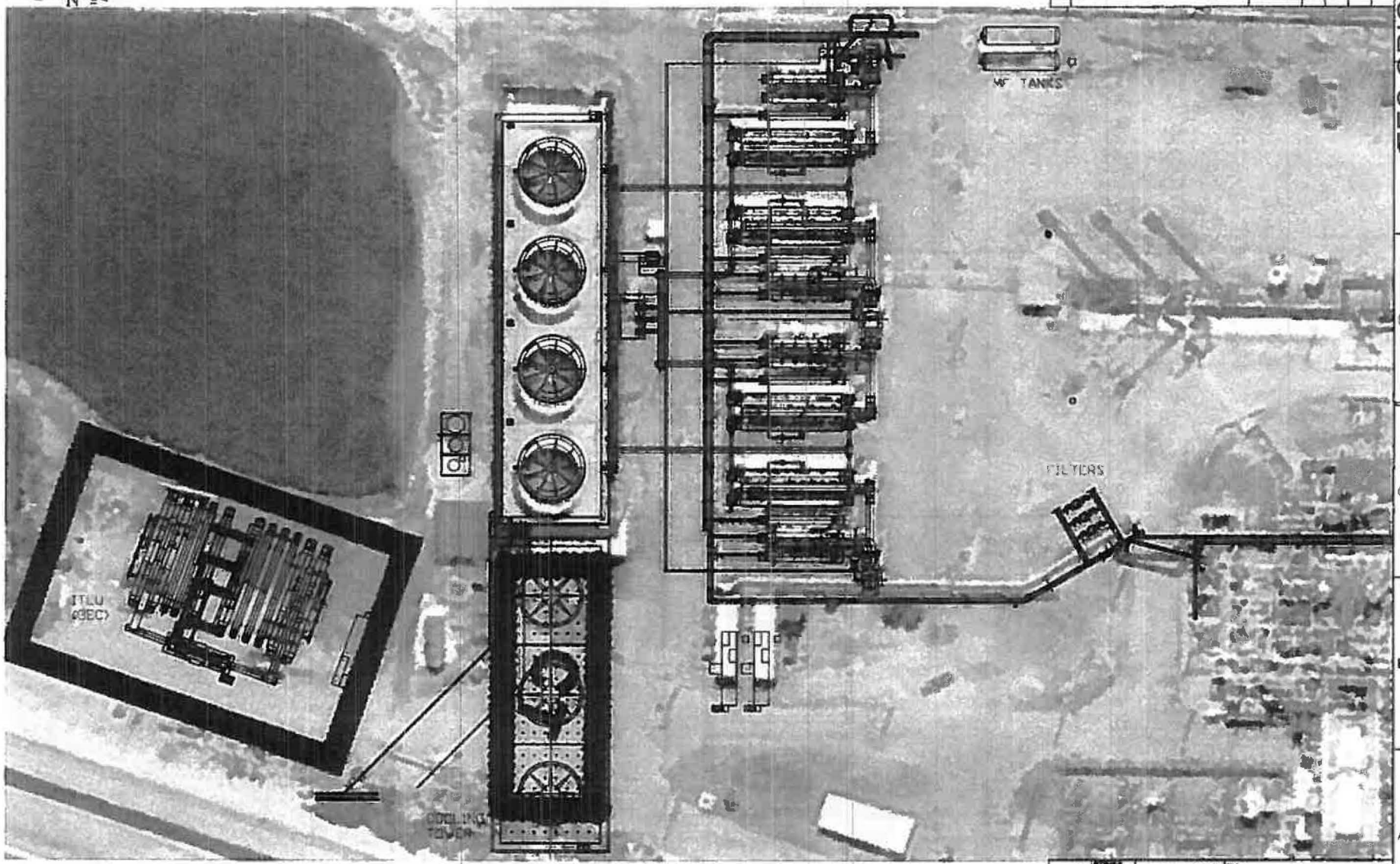

NOTE:
1. DIMENSIONS ARE IN FEET(S)

0 50' 100'

ORMAT

GEOTHERMAL PROJECT - HEBER I (ITLU)
PIPING
GENERAL LAYOUT

7.065.50.XXX 0 | SHEET 1 OF 1 | REV P0

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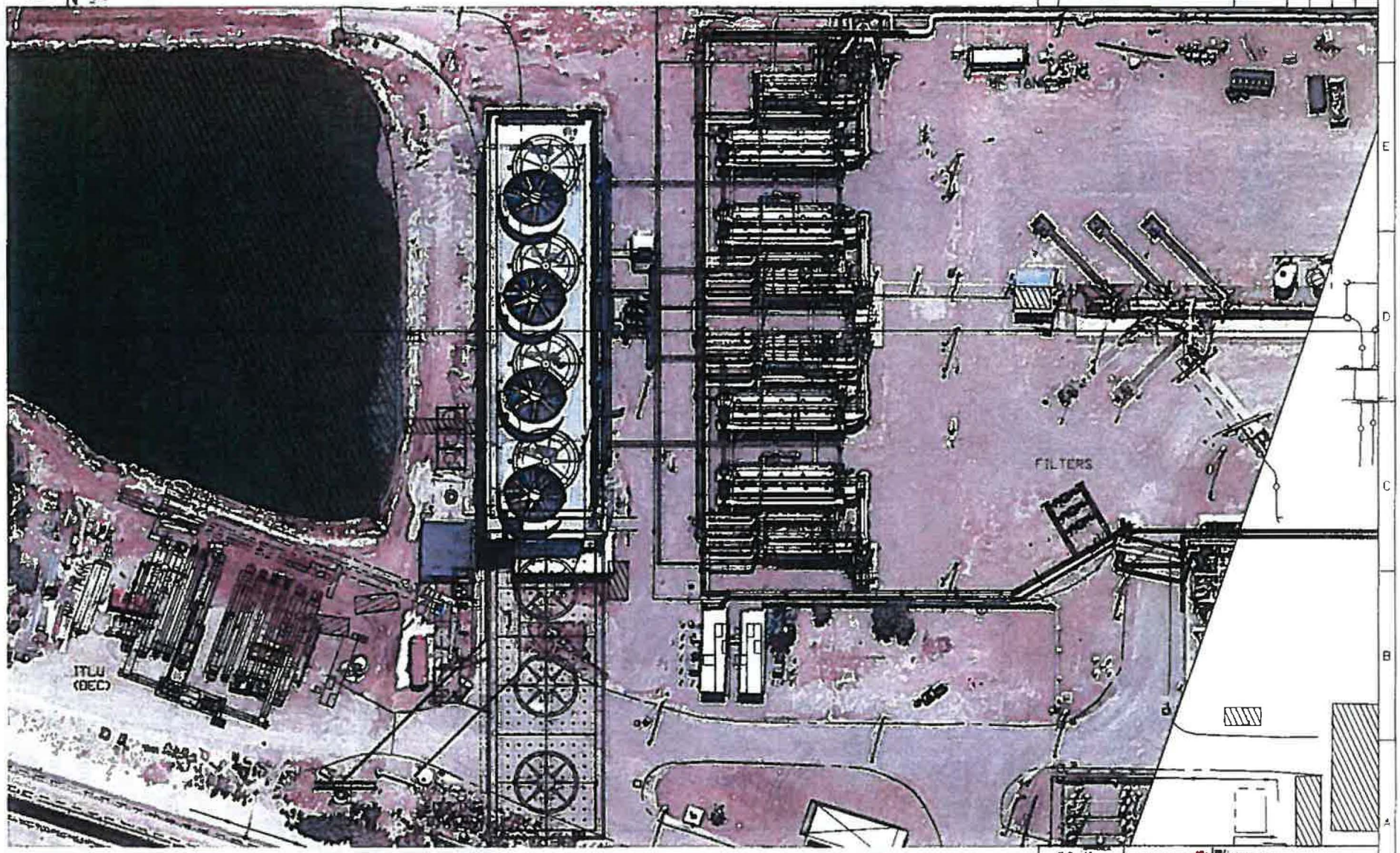
REV	DESCRIPTION	DATE	BY	CHK	ENG	PRJ
P0	PRELIMINARY	12-JAN-2015	A.S.			



NOTES:
1. DIMENSIONS ARE IN FEET'S

0 50' 100'

ORMAT

GEOTHERMAL PROJECT - HEBER SOUTH
PIPING
GENERAL LAYOUT

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RECEIVED
MAY 08 2015
IMPERIAL COUNTY
PLANNING & DEVELOPMENT SERVICES

Vendor No: 2016348
Name : Imperial County Planning

Date: 26-Mar-15
Check Total : 10,000.00

IMAT NEVADA INC. 6225 NEIL ROAD • RENO, NV 89511-1136 087384 DATE CHECK NO VENDOR KEY

INVOICE #	INVOICE DATE	AMOUNT	DISCOUNT	VOUCHER #	NET AMOUNT
ICPDS 03-20-15	20-Mar-15	10,000.00	.00		10,000.00
TOTAL		10,000.00	.00		10,000.00

ORIGINAL CHECK HAS A COLORED BACKGROUND PRINTED ON CHEMICAL REACTIVE PAPER

ORMAT NEVADA INC.
GENERAL ACCOUNT
6225 NEIL ROAD
RENO, NV 89511-1136
(775) 356-9029

UNION BANK OF CALIFORNIA
POWER UTILITIES DEPOSITS SOUTH
LOS ANGELES, CA 90071-1602
11-49/1210

087384

DATE: 26-Mar-15
CHECK NO.: 87384

Ten Thousand Dollars And Zero Cents**********

AMOUNT: **10,000.00

PAY TO THE ORDER OF
Imperial County Planning
& Development Services
801 Main Street
El Centro, CA 92243

MP
MP

RED CHECK NUMBERING IMAGES THROUGH TO BACK OF SHEET

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EEC ORIGINAL PKG

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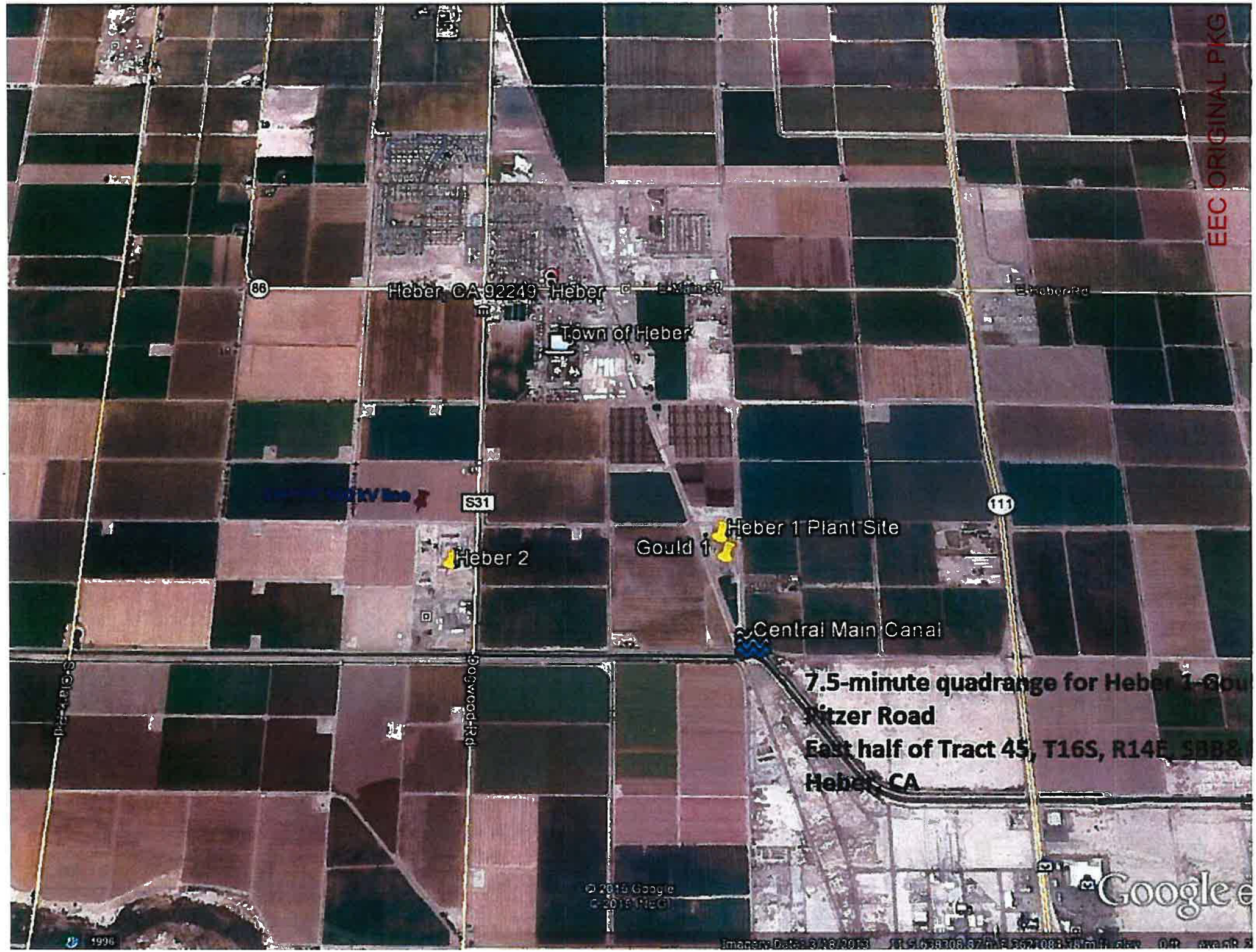
EEC ORIGINAL PKG
86
Heber, CA 92249
Heber
Town of Heber
S31
111
Heber 1 Plant Site
Gould 1
Heber 2
Central Main Canal
7.5-minute quadrange for Heber 1-Gou
Fitzer Road
East half of Tract 45, T16S, R14E, SBB&
Heber, CA
Dogwood Rd
© 2015 Google
Google

EEG ORIGINAL PKG

Recorded in Official Records,
IMPERIAL COUNTY
Doc#: 2015024813
11/30/2015 02:50 PM

Please return to:

Imperial County Planning & Dev. Services Department
801 Main Street
El Centro, California 92243

RECORDED

NOV 30 2015

Chuck Storey
Imperial County Clerk-Recorder
California

AGREEMENT FOR CONDITIONAL USE PERMIT #15-0013 ORMAT NEVADA INC./HEBER GEOTHERMAL COMPANY

(Approved by the Planning Commission on September 9, 2015)
(Approved by the Board of Supervisors on November 10, 2015)

This Agreement is made and entered into on this 30th day of NOVEMBER, 2015, by and between ORMAT Nevada, Inc. dba Heber Geothermal Company, hereinafter referred to as Permittee, and the COUNTY OF IMPERIAL, a political subdivision of the State of California, (hereinafter referred to as "COUNTY").

RECITALS

WHEREAS, Permittee is the owner, lessee or successor-in-interest in certain land in Imperial County located south of State Highway 86, east of Dogwood Road, north of Willoughby Road, and southeast of the townsite of Heber, California, described as a portion of the East half of Tract 45, APN 054-250-036-000, 20 acres, Township 16 South, Range 14 East, SBB&M; and,

WHEREAS, Permittee has applied to the County of Imperial for a Conditional Use Permit #15-0013 ("Project") for the following expansion project which supercedes the previous CUPs #06-0006 and #04-0024);

GENERALCONDITIONS:

The "GENERAL CONDITIONS" are shown by the letter "G". These conditions are conditions that are either routinely and commonly included in all Conditional Use Permits as "standardized conditions and/or are conditions that the Imperial County Planning Commission has established as a requirement on all CUP's for consistent application and enforcement. The Permittee is hereby advised that the General Conditions are as applicable as the SITE SPECIFIC conditions.

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G-1 GENERAL LAW:

The Permittee shall comply with all local, state and/or federal laws, rules, regulations, ordinances, and/or standards as they may pertain to the Project whether specified herein or not.

G-2 PERMITS/LICENSES:

The Permittee shall obtain any and all local, state and/or federal permits, licenses, and/or other approvals for the construction and/or operation of the Project. This shall include, but not be limited to, local requirements for Health, Building, Sanitation, ICAPCD, Public Works, County Sheriff, Fire/Office of Emergency Services, Regional Water Quality Control Board, California Division of Oil, Gas and Geothermal Resources (CDOGGR), among others. Permittee shall likewise comply with all such permit requirements and shall submit a copy of such additional permit and/or licenses to the Planning & Development Services Department within 30 days of receipt, as deemed necessary.

G-3 RECORDATION:

This permit shall not be effective until it is recorded at the Imperial County Recorders Office and payment of the recordation fee shall be the responsibility of the Permittee. If the Permittee fails to pay the recordation fee within six (6) months from the date of approval, this permit shall be deemed null and void. The Planning & Development Services Department will submit the executed CUP to the County Recorder's office for recordation purposes.

G-4 CONDITION PRIORITY:

The Project shall be constructed and operated as described in the Conditional Use Permit application, and as specified in these conditions.

G-5 INDEMNIFICATION:

As a condition of this permit, Permittee agrees to defend, indemnify, hold harmless, and release the County, its agents, officers, attorneys, and employees from any claim, action, or proceeding brought against any of them, the purpose of which is to attack, set aside, void, or annul the permit or adoption of the environmental document which accompanies it. This indemnification obligation shall include, but not be limited to, damages, costs, expenses, attorneys fees, or expert witness fees that may be asserted by any person or entity, including the Permittee, arising out of or in connection with the approval of this permit, whether there is concurrent, passive or active negligence on the part of the County, its agents, officers, attorneys, or employees. This indemnification shall include Permittee's actions involved in construction, operation or abandonment of the permitted activities.

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G-6 INSURANCE:

The Permittee shall secure and maintain liability in tort and property damage, insurance at a minimum of $1,000,000 or proof of financial responsibility to protect persons or property from injury or damage caused in any way by construction and/or operation of the permitted facilities. The Permittee shall require that proper Workers' Compensation insurance cover all laborers working on such facilities, e.g. during construction and maintenance, as required by the State of California. The Permittee shall also secure liability insurance and such other insurance as may be required by the State and/or Federal Law. Evidence of such insurance shall be provided to the County prior to commencement of any activities authorized by this permit, e.g. a Certificate of Insurance is to be provided to the Planning & Development Services Department by the insurance carrier and said insurance and certificate shall be kept current for the life of the permitted project. Certificate(s) of insurance shall be sent directly to the Planning & Development Services Department by the insurance carrier and shall name the Department as a recipient of both renewal and cancellation notices.

G-7 INSPECTION AND RIGHT OF ENTRY:

The County reserves the right to enter the premises to make appropriate inspection(s) and to determine if the condition(s) of this permit are complied with. The owner or operator shall allow authorized County representative(s) access upon the presentation of credentials and other documents as may be required by law to:

(a) Enter at reasonable times upon the owner's or operator's premises where the permitted facilities are is located, or where records must be kept under the conditions of the permit;

(b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit;

(c) Inspect at reasonable times any facilities, equipment, or operations regulated or required under the permit, and,

G-8 SEVERABILITY:

Should any condition(s) of this permit be determined by a Court or other agency with proper jurisdiction to be invalid for any reason, such determination shall not invalidate the remaining provision(s) of this permit.

G-9 PROVISION TO RUN WITH THE LAND/PROJECT:

The provisions of this project are to run with the land/project and shall bind the current and future owner(s), successor(s) of interest, assignee(s) and/or transferee(s) of said project. Permittee shall not without prior notification to the Planning & Development Services Department assign, sell or transfer, or grant control of project or any right or privilege therein. The Permittee shall provide a minimum of sixty (60) days written notice prior to such proposed transfer becoming effective. The permitted use identified herein is limited for use upon the permitted properties described herein and may not be transferred.

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G-10 TIME LIMIT:

Unless otherwise specified within the specific conditions, this permit shall be limited to a maximum of thirty (30) years from the recordation of the CUP. The CUP may be extended for an additional ten (10) year period by the appropriate County entity (either the Planning Director, the Planning Commission or the Board of Supervisors as set forth in the applicable Imperial County Ordinances) upon a finding that the Project is in compliance with all conditions of the CUP as stated herein and any applicable Land Use regulation of the County of Imperial. If an extension is necessary, the Permittee shall file a written extension request with the Planning Director at least sixty (60) days prior to the expiration date of the permit. Such an extension request shall include the appropriate extension fee. Nothing stated or implied within this permit shall constitute a guarantee that an extension will be granted. An extension may not be granted if the Project is in violation of any one or all of the conditions or if there is a history of non-compliance with the permit conditions.

G-11 COST:

The Permittee shall pay any and all amounts determined by the County Planning & Development Services Department to defray any and all cost(s) for the review of reports, field investigations, monitoring, and other activities directly related to the enforcement/monitoring for compliance of this Conditional Use Permit, County Ordinance or any other applicable law as provided in the Land Use Ordinance, Section 90901.03 et. seq, General Planning fees. All County Departments, directly involved in the monitoring/enforcement of this project may bill Permittee under this provision, however said billing shall only be through and with the approval of the Planning & Development Services Department.

G-12 REPORTS/INFORMATION:

If requested by the Planning Director, Permittee shall provide any such documentation/report as necessary to ascertain compliance with the Conditional Use Permit. The format, content and supporting documentation shall be as required by the Planning Director.

G-13 DEFINITIONS:

In the event of a dispute the meaning(s) or the intent of any word(s), phrase(s) and/or conditions or sections herein shall be determined by the Planning Commission of the County of Imperial. Their determination shall be final unless an appeal is made to the Board of Supervisors within the required time, i.e. ten (10) calendar days, pursuant to the Land Use Ordinance, Title 9, Division 1, Chapter 4, Section 90104.05, Appeal from Decision.

G-14 MINOR AMENDMENTS:

The Planning Director may approve minor modifications to the Permit to accommodate minor changes or modifications to the design, construction, and/or operation of the Project provided said changes are necessary for the project to meet other laws, regulations, codes, or conditions of the CUP and provided further, that such changes will not result in any additional environmental impacts.

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G-15 SPECIFICITY:

The issuance of this permit does not authorizes the Permittee to construct or operate the Project in violation of any state, federal, local law nor beyond the specified boundaries of the project as shown the application/project description/permit, nor shall this permit allow any accessory or ancillary use not specified herein. This permit does not provide any prescriptive right or use to the Permittee for future addition and or modifications to the Project.

G-16 NON-COMPLIANCE (ENFORCEMENT & TERMINATION):

Should the Permittee violate any condition herein, the County shall give notice of such violation. If Permittee does not act to correct the identified violation, and after having given reasonable notice and opportunity, e.g. typically at least thirty (30) days, the County may revoke the permit.

(a) If the Planning Commission finds and determines that the Permittee or successor-in-interest has not complied with the terms and conditions of the CUP, or cannot comply with the terms and conditions of the CUP, or the Planning Commission determines that the permitted activities constitute a public nuisance, the Planning Director shall provide Permittee with notice and a reasonable opportunity to comply with the enforcement or abatement order.

(b) If after receipt of the order (1) Permittee fails to comply, and/or (2) Permittee cannot comply with the conditions set forth in the CUP, then the matter shall be referred to the Planning Commission for permit modification suspension, or termination, or to the appropriate prosecuting authority.

G-17 GENERAL WELFARE:

All construction, drilling, testing, and operations shall be conducted with consistency with all laws, conditions, adopted County policies, plans and the application so that the project will be in harmony with the area and not conflict with the public health, safety, comfort, convenience, and general welfare.

G-18 PERMITS OF OTHER AGENCIES INCORPORATED:

Permits granted by other governmental agencies in connection with the Project are incorporated herein by reference. The County reserves the right to apply conditions of those permits, as the County deems appropriate; provided however, that enforcement of a permit granted by another governmental agency shall require concurrence by the respective agency. Permittee shall provide to the County, on request, copies and amendments of all such permits.

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G-19 HEALTH HAZARD:

If the County Health Officer determines that a significant health hazard exists to the public, the Health Officer may require appropriate measures and the Permittee shall implement such measures to mitigate the health hazard. If the hazard to the public is determined to be imminent, such measures may be imposed immediately and may include temporary suspension of permitted activities, the measures imposed by the County Health Officer shall not prohibit the Permittee from requesting a special Planning Commission meeting, provided Permittee bears all related costs.

G-20 EMPLOYMENT:

The Permittee shall use to the maximum extent possible local labor from Imperial County for both construction and operation of said project. Permittee shall give priority to the extent allowed by law to applicants from Imperial County. This provision shall apply to all levels of employment at the site from Senior Management, Technical to Laborer (collectively the work force). At a minimum, Permittee shall seek to secure 50% of the work force from Imperial County residents (County residents being defined as anyone who has resided within the County for at least 120 days). In the event Permittee is unable to meet this requirement due to lack of qualified applicants, a comprehensive report shall be provided to the Planning & Development Services Department. Said report shall include the description of position(s), the number and origin of all applicants, the reasons that Permittee cannot comply. In the event compliance cannot be attained, this matter shall be brought to the Planning Commission for direction and/or modification.

G-21 APPROVALS AND CONDITIONS SUBSEQUENT TO GRANTING PERMIT:

Permittee acceptance of this permit shall be deemed to constitute agreement with the terms and conditions contained herein. Where a requirement is imposed in this permit that Permittee conduct a monitoring program, and where the County has reserved the right to impose or modify conditions with which the Permittee must comply based on data obtained therefrom, or where Permittee is required to prepare specific plans for County approval and disagreement arises, the Permittee, operator and/or agent, the Planning Director or other affected party, to be determined by the Planning Director, may request that a hearing be conducted before the Planning Commission whereby they may state the requirements which will implement the applicable conditions as intended herein. Upon receipt of a request, the Planning Commission shall conduct a hearing and make a written determination. The Planning Commission may request support and advice from a technical advisory committee. Failure to take any action shall constitute endorsement of staff's determination.

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SITE SPECIFIC CONDITIONS:

S-1 AUTHORIZED SCOPE OF ACTIVITIES:

The Permittee has constructed and operated the following facilities in compliance with the County's General Plan, 2006 Geothermal/Alternative & Transmission Element, Land Use Ordinance, and former CUP #06-0006, and all other applicable local, state, and federal laws, ordinances, regulations and standards:

(a) The Heber Geothermal Company (Heber 1), originally 47 MW (net) geothermal power plant, consisting of flash tanks, a turbine-generator, a condenser, a cooling tower, an electrical substation, rock muffler, and related tanks, pits, pumps, piping, ponds, and related ancillary equipment;

(b) A control room, office, maintenance shop and other facilities located at the power plant site;

(c) Construct, operate and maintain three (3) Ormat Energy Converter (OEC) Units, each consisting of vaporizers, turbines, condensers, preheaters, pumps and piping; two (2) OEC Units with generators to generate additional electrical energy and one (1) OEC Unit to power a brine injection pump; with associated ancillary equipment, motive fluid storage facilities, motive fluid vapor recovery system and four-cell cooling tower with associated pumps, piping and electrical equipment;

(d) Connect the three (3) OEC Units to the Heber 1 geothermal power plant brine injection piping and electrical transmission equipment and the new cooling tower to the Heber 1 plant ancillary systems;

(e) Construct, connect, operate and maintain two (2) additional cells to the existing Heber 1 geothermal power plant 5-cell cooling tower;

(f) A production island containing eleven (11) wells;

(g) Piping from the wells to the power plant and from the plant to the injection islands;

(h) An injection island containing eight (8) wells and additional injection island containing two (2) wells;

(i) Pumps, tanks, valves, controls, flow monitoring, and other necessary appurtenances to the above wells and pipelines;

(j) Construct and maintain the proposed injection pipeline from Heber Geothermal Company (Heber 1) geothermal power plant to the Second Imperial Geothermal Company (Heber 2) injection facilities;

(k) Operation of pumps, valves, and other control mechanisms, associated with the pipeline, flow monitoring and other necessary appurtenances to the above.

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The proposed expansion project will be constructed, operated and maintained as follows:

(a) The expansion to the existing Heber 1/Gould 1 geothermal plant will include the adding of one new OEC Unit, three (3) cell cooling towers to the existing cooling tower facility, modify one of the existing Gould 1 OECs with additional piping, and adding an additional iso-pentane tank;

(b) Except as specifically authorized in this permit to complete the above activities, supplemental activities which require additional major equipment or facilities will require separate permits. The County, in issuing this permit, in no way assures or otherwise vests any right, with respect to the issuance of a permit(s) for any supplemental activities and Permittee shall also comply with all applicable geothermal standards in the Land Use Ordinance.

S-2 AIR QUALITY AND DUST EMISSIONS:

The Permittee shall comply with the Imperial County Air Pollution Control District's (ICAPCD) Regulation VIII, fugitive dust control. The primary pollutant controlled by this regulation is PM10, "fugitive dust". In addition, the Permittee shall obtain an Authority to Construct (ATC) prior to any construction and submit an application amending their Permit to Operate (PTO) prior to the operation of any new or modified equipment as required by Rule 207, New and Modified Source Review.

The following mitigation measures were acknowledged as stated within in the Imperial County Air Pollution Control District letter, dated July 19, 2015, as follows:

Mitigation Measures:

Summary – the project will need to do the following:

a. Submit a revised application for an Authority to Construct well in advance of any construction activities.

b. Adhere to all conditions of the Authority to Construct, including but not limited to compliance with all review design conditions for system operations which insure compliance with federal and state standards, testing and verification of compliance. Hydrogen sulfide, other non-condensable emissions, and all harmful and noxious odors, shall be controlled according to the ATC/PTO conditions to ensure that quantities released as a result of plant operations do not exceed federal or state standards. Finally, the Permittee shall comply with all offset requirements in the event that potential emissions exceed Rule 207 thresholds.

c. Develop a Construction Dust Control Plan and submit to the APCD for verification prior to any earthmoving activity.

d. In order to confirm that NOx emissions are less than significant the applicant must submit to the Imperial County Air Pollution Control District a complete list of all off-road equipment planned for use and/or used for the construction of the wells and the facility by Make, Model, Year, Horsepower, and hours of operation prior to any earthmoving activity.

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e. Should NOx emissions exceed the threshold of significance as found in the Imperial County CEQA Air Quality Handbook the proponent may propose an off-site measure in the form of a project to "off-set" the net excess emissions or abide by Policy 5 which allows for the payment of in-lieu fees.

S-3 ARCHAEOLOGICAL, CULTURAL & PALEONTOLOGICAL RESOURCES:

The Permittee shall monitor the construction of expansion equipment and if any unusual specimens of bone, stone, or ceramic are discovered during construction of the permitted facilities, all construction affecting the discovery site, shall cease until a qualified archaeologist retained by the Permittee and approved by the County, reviews the specimens. The recommendations of the archaeologist shall be complied with prior to resuming construction.

S-4 BRINE CHEMISTRY:

Permittee shall conduct brine chemistry tests which shall include but not be limited to analysis for hydrogen sulfide, mercury, arsenic, fluoride, boron, ammonia, strontium, iron, zinc, barium, lithium, lead, copper, and chromium. The results of such tests shall be provided by the County upon request. To the extent information contained in test results are proprietary, such information shall not be released to the public

S-5 CONFORMITY:

The expansion project shall be designed, constructed, and operated in substantial conformance with the application.

S-6 CONSTRUCTION STANDARDS:

The expansion facilities shall be built in accordance with the County Building Code requirement applicable to "Seismic Design D". All structures and facilities shall be designed in accordance with the publication entitled "Recommended Lateral Force Requirements and Commentary by the Structural Engineers Association of California". The structural components of the permitted facilities shall be reviewed by the Building Official/Planning Director. Building permits shall be procured for the Project from the County prior to commencement of any construction.

S-7 EMERGENCY RESPONSE PLAN:

The existing Emergency Response Plan shall be maintained covering possible emergencies, e.g. blow-outs, major fluid spills, impacts due to earthquakes, and other emergencies. At all times, there shall be at least one employee "on call", i.e., available to respond to an emergency by reaching the facility within a short period of time, with the responsibility of coordinating all emergency response measures. The Emergency Coordinator shall be thoroughly familiar with all aspects of the Emergency Response Plan and have the authority to commit the resources needed to carry out the contingency plan. Adequate personnel and equipment shall be

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available to respond to emergencies and to insure compliance with the conditions of the permit, to include appropriate first aid provisions during project construction and operation with appropriate first aid training for project employees. The existing Hazardous Materials Business Plan submitted to the County Environmental Health Services Division, Health Department, shall be maintained by the Permittee and any applicable amendments provided as deemed necessary for this project.

S-8 GEOTECHNICAL:

Geotechnical investigations of soil characteristics affecting the expanded facilities shall be conducted by qualified people at the applicant's expense. The report therefrom shall be made available to the County on request.

S-9 GEOLOGIC HAZARDS:

No structure meant to be, or which actually is, regularly, habitually, or primarily, occupied by humans shall be placed across the trace of an active fault. Further, no such structure shall be placed within fifty (50) feet of the trace of an active fault, nor anywhere within a seismic special studies zone, unless a geologic report, satisfactory to the State Geologist, is prepared and shows that no undue hazard would be created by construction or placement of the structure.

S-10 NOISE:

Control measures shall include, but are not limited to, the following:

(a) Diesel equipment used for drilling within 1,000 feet of any residence shall have hospital-type mufflers. Well venting and testing at these wells shall be accompanied by the use of an effective muffling device or "silencer".

(b) Heavy truck traffic, well site preparation, and pipe stacking shall be limited to the hours of 7:00 a.m. and 7:00 p.m. for any wells within 1,000 feet of any residence.

(c) Hydroblasters used in descaling operations when used within 1,000 feet of a residence shall be limited to the hours of 7:00 a.m. to 7:00 p.m.

(d) The Permittee may propose and the Planning Director may approve modification of the above measures.

S-11 PROJECT DESIGN:

The following shall be followed in project design:

(a) All expansion loops in fluid lines shall be horizontal except where requested in writing by the owners of surface rights within five hundred (500) feet of a proposed expansion loop, or where design constraints require otherwise.

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(b) Marking and lighting of drill rigs and permanent facilities shall be maintained in accordance with Federal Aviation Administration regulations.

(c) On-site parking shall be provided for all employees, customers, clients, and visitors. All facility roads and parking areas shall be constructed and surfaced to County standards.

(d) Shrubs, trees and ground cover shall be planted and maintained to compliment the appearance of the project, in accordance with a landscaping plan approved by the Planning Director.

(e) Permittee shall submit architectural and landscaping plans, as required herein, for all facilities to be constructed as part of the project to the Planning Director, and shall receive the approval of said Director prior to the commencement of construction. The Director shall not unreasonably withhold approval of said plans.

(f) All lights shall be directed or shield to confine any direct rays to the site, and shall be muted to the maximum extent consistent with safety and operational necessity.

(g) The location of power pole lines adjacent to County roads shall be reviewed and approved by the Public Works Department prior to construction/installation of the power poles.

(h) The Planning Director may authorize minor relocation of the well sites, lines, and other minor adjustments to insure that the final facilities comply with the conditions of this permit and those required by other governmental agencies.

S-12 PROTECTION OF WILDLIFE:

Measures approved by the Planning Director shall be employed to discourage or prevent wildlife and avian entry into brine ponds. Well cellars shall be designed to prevent wildlife entry and entrapment. Pipelines shall be constructed so as not to become a barrier to wildlife movement.

S-13 REPORTING:

The Permittee shall furnish to the County, within a reasonable time, any relevant reports/information which the County requires for monitoring purposes to determine whether cause exists for revoking this permit, or to determine compliance with this permit, i.e. relevant reports are those defined within this Permit or requested by the County. The Permittee shall submit all required reports to the Planning Director, County Planning & Development Services Department, 801 Main Street, El Centro, CA 92243.

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S-14 SUBSIDENCE:

Permittee shall participate in the County's subsidence detection program and, in connection therewith, submit a plan for Department of Public Works (ICPWD) approval, showing the proposed locations of benchmarks. Monuments shall connect with the County's geothermal subsidence detection network. Benchmarks installed shall conform to County standards. Surveying shall be performed to National Geodetic Survey (NGS) standards and all field surveying shall conform to such standards.

Permittee shall evaluate whether or not the recent abnormally high annual subsidence measurements may be continuing, or whether they may be the result of some mechanism not associated with geothermal operations and shall:

(a) Review the results of the precision level survey of the Heber subsidence monitoring network;

(b) Install and level as part of this survey, a few additional subsidence monuments in the areas of greatest subsidence (near the intersection of Dogwood Road and Willoughby Road) at locations selected in consultation with ICPWD and CDOGGR.

(c) Within approximately six (6) months of this survey, a follow-up with another survey of the entire Heber subsidence monitoring network, including these new monuments;

(d) Prepare and submit to ICPBD, ICPWD, and CDOGGR, a specific plan for additional monitoring and the development of potential measures to mitigate (if determined necessary), the subsidence to uplift in the Heber geothermal field area which may be attributable to Project operations to include:

- Re-surveying at least the core sections of the Heber subsidence monitoring network every six (6) months;
- Continuing to re-survey the entire Heber subsidence monitoring network annually;
- Implementing a program to monitor selected key land surface features (such as major bridges and canal structures) for evidence of changes due to subsidence or uplift; and,
- Conducting geothermal reservoir modeling to evaluate what specific changes in the operation of the geothermal wellfield could be undertaken to alter the geothermal reservoir pressure distribution with the objective of reducing the rate of geothermal subsidence and/or uplift in the areas of greatest challenge.

(e) Monitor results of future surveys as per item (d) and, based on those results, develop a long term plan for submittal to ICPBD, ICDPW, and CDOGGR to reduce, or reverse if possible, any uplift in the Heber injection areas or any subsidence in the Heber production areas;

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(f) Construct and operate, as soon as all the required permits and approvals have been obtained, the proposed expansion project.

S-15 INDUCED SEISMICITY:

Permittee shall participate in the County's seismic monitoring program, and in connection therewith, submit a plan for Public Works Department approval, and shall implement the plan as approved. If evidence of detrimental seismicity induced by project operations is indicated, changes in operations, including possible cessation of operations, may be ordered by the Department of Public Works after consultation with the California Department of Oil, Gas and Geothermal Resources (CDOGGR) and Permittee.

S-16 SYSTEM SHUT DOWN AND SITE ABANDONMENT:

The Permittee shall prepare and implement a plan for when the operation of the permitted facilities herein authorized has ceased, that all HGC facilities shall be dismantled, and the land involved be made compatible with the surrounding uses, or as requested by the landowner and as agreed to by the County Planning Director. A Bond, or other acceptable surety, or other forms of security acceptable to Imperial County, in the amount of $500,000, in addition to any amount set by the California Division of Oil, Gas and Geothermal Resources, shall be filed with the County that guarantees restoration of the land to its condition prior to the injection pipeline development. Upon completion of such site restoration, the Bond or other surety shall be released by the County.

S-17 REINJECTION:

Fluids equivalent to 86% of produced fluids by mass, and on an annual basis, shall be injected back into the reservoir subject to the requirements of CDOGGR and information obtained from any monitoring programs and other sources.

If significant subsidence, loss of reservoir pressure, or other detriments attributable to this project occur, or substantial evidence of other undesirable changes in operations is revealed, corrective measures or changes may be ordered by the County. Corrective measures may be included, but are not limited to, a modified injection rate or altered injection depth, re-leveling of affected areas, or reduction or total cessation of geothermal activities.

S-18 SPILLS AND RUNOFF:

The expanded plant site shall be designed and constructed to prevent spills from endangering adjacent properties and waterways, and to prevent runoff from any source being channeled or directed in an unnatural way so as to cause erosion, siltation, or other detriments. A system of pressure and flow sensing devices and regular inspection of all lines, capable of detecting leaks and spills, shall be instituted and maintained. Blowout prevention equipment shall be used in accordance with the requirements of CDOGGR.

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S-19 MAINTENANCE OF WATER QUALITY:

A water quality monitoring program, acceptable to the Regional Water Quality Control Board (RWQCB) shall be instituted and maintained. If injection fluids intrude on shallow ground waters, a modification of the injection program may be ordered by the County in consultation with RWQCB and the Permittee. Any needed sumps and holding ponds shall be constructed and maintained so that permeability does not exceed 1 X 10-6 cm/sec.

S-20 TRAFFIC SAFETY:

The Permittee shall obtain all encroachment permits and consider traffic safety in transporting equipment and materials to the permitted facilities to include temporary signs warning motorists on adjacent roadways and flagmen shall be used when equipment is being brought to and from the Project site.

(a) The Permittee shall coordinate the movement of any required oversize loads on County roads with the DPW, on State Highways with CALTRANS as well as the El Centro CHP office and such transportation of oversized equipment should be minimized as much as possible.

(b) The Permittee shall be required to obtain any necessary rights-of-way on property under the lease and control of the Permittee and to provide any necessary road work as deemed necessary by the DPW.

(c) The Permittee shall coordinate with DPW for their requested dedication of rights-of-way needed for Pitzer Road for the consideration of existing and any future road needs.

(d) The Permittee shall file for an encroachment permit for any work or proposed work in the affected County road rights-of-way.

(e) The Permittee shall coordinate the maintenance of unpaved roads used for construction activities and obtain approvals from the County Department of Public Works.

The following mitigation measures were submitted by the County Public Works Department letter, dated June 25, 2015, and revised as of August 17th as follows:

Mitigation Measures:

1. The applicant shall furnish a Drainage and Grading Plan/Study to provide for property grading and drainage control, which shall also include prevention of sedimentation of damage to off-site properties. The Study/Plan shall be submitted to the Department of Public Works for review and approval. The applicant shall implement the approved plan. Employment of the appropriate Best Management Practices (BMP's) shall be included. (Per Imperial County Code of Ordinances, Chapter 12.10.020 B).

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2. An encroachment permit shall be secured from the Department of Public Works for any and all new, altered or unauthorized existing driveway(s) to access the properties through surrounding County roads. As a minimum, a Commercial-type Driveway shall be constructed. (Per Imperial County Code of Ordinances, Chapter 12.10.020 B).
3. The applicant for Encroachment Permits in County Roads and Right-of-Way is responsible for researching, protecting, and preserving survey monuments per the Professional Land Surveyor's Act (8771 (b)). This shall include a copy referenced survey map and tie card(s) (if applicable) for all monuments that may be impacted.
4. The applicant for grading plans and/or improvement plans is responsible for researching, protecting and preserving survey monuments per the Professional Land Surveyor's Act (8771 (b)). This shall include a copy of the referenced survey map and tie card(s) (if applicable) for all monuments that may be impacted by the project whether if are on-site or off-site.

INFORMATIVE:

5. All solid and hazardous waste shall be disposed of in approved solid waste disposal sites in accordance with existing County, State and Federal regulations **(Per Imperial County Code of Ordinances, Chapter 8.72).**
6. All on-site traffic area shall be hard surfaced to provide all weather access for fire protection vehicles. The surfacing shall meet the Department of Public Works and Fire/OES Standards as well as those of the Air Pollution Control District (APCD) **(Per Imperial County Code of ordinances, Chapter 12.10.020 A).**
7. The project may require a National Pollutant Discharge Elimination System (NPDES) permit and Notice of Intent (NOI) from the Regional Water Quality Control Board (RWQCB) prior county approval of on-site grading plan **(40 CFR 122.28).**

S-21 WATER COURSE CROSSINGS:

The Permittee shall provide one or more of the following techniques to decrease the potential for spills on or near Imperial Irrigation District water courses, e.g. surface water canals and/or drains, as follows:

(a) Pipes shall be constructed of industrial standard designation of "extra heavy" with a thickness of at least 50% greater than that used for other sections of pipe.

(b) An automatic injection pump shut off and check valve system to immediately stop fluid flow shall be installed on the injection pipeline.

(c) Design of facilities shall protect surface and groundwater, e.g. handling of on-site drainage shall not adversely affect adjacent properties.

(d) Other spill prevention measures approved by the County shall be implemented.

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S-22 WASTE DISPOSAL:

The Permittee shall insure that any discharged wastes, liquid or solid, shall be disposed of in compliance with all appropriate local, state, and federal regulations, in effect or subsequently duly-enacted, i.e. discharge of wastes into surface water shall meet all requirements of the Regional Water Quality Control Board, e.g. National Pollution Discharge Elimination System permit restrictions, and solid wastes shall be disposed of in an approved solid waste disposal site in accordance with County regulations.

S-23 ODORS:

All harmful or noxious emissions and odors shall be controlled to insure that quantities of air contaminants released as a result of the facility operations do not exceed State standards, or constitute a public nuisance.

S-24 WATER USAGE:

The Permittee may use up to a total of 1,800 acre feet of irrigation water per year for thirty (30) years from Imperial Irrigation District. Any extension beyond this period must be agreed to in writing by the Imperial Irrigation District. If the amount of water available to Imperial County is reduced by the Central Arizona project, the right to the irrigation water for this permit granted herein may be terminated. Permittee shall diligently pursue the development of alternate sources to replace the use of irrigation water.

S-25 PARTICIPATION IN GEOTHERMAL COMMITTEE:

Permittee shall participate in the "Geothermal Industrial Committee" formed by the County.

S-26 ACCEPTANCE:

Acceptance of this permit shall be deemed to constitute agreement by Permittee with all terms and conditions herein contained.

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NOW THEREFORE, County hereby issues the Conditional Use Permit #15-0013 and Permittee hereby accepts such upon the terms and conditions set forth herein.

IN WITNESS THEREOF, the parties hereto have executed this Agreement the day and year first written.

PERMITTEE

Connie Stechman — November 11, 2015

Connie Stechman
Assistant Secretary, Ormat Nev. Inc.
Managing Member, ORTP LLC
Sole Member, OrCal Geo. LLC
Managing Member, Heber Geo. Co. LLC

Date

COUNTY OF IMPERIAL, a political subdivision of the STATE OF CALIFORNIA

11/30/15

Jim Minnick
Planning Director
Planning & Development Services Department

Date

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FOR PERMITTEES NOTARIZATION

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

Dated_____

STATE OF ~~CALIFORNIA~~ Washoe Nevada

COUNTY OF Washoe } S.S.

On November 16, 2015 before me, Connie Stechman / Casey Fleischer a Notary Public in and for said County and State, personally appeared Connie Stechman, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

CASEY FLEISCHER
Notary Public - State of Nevada
Appointment Recorded in Washoe County
No: 02-78271-2 - Expires January 17, 2017

WITNESS my hand and official seal

Signature _____

ATTENTION NOTARY: Although the information requested below is OPTIONAL, it could prevent fraudulent attachment of this certificate to unauthorized document.

Title or Type of Document CUP# 15-0013

Number of Pages 19 Date of Document 11/30/2015

Signer(s) Other Than Named Above CONNIE STECHMAN

Dated_____

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FOR COUNTY NOTARIZATION

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF CALIFORNIA

COUNTY OF IMPERIAL } S.S.

On 11/30/2015 before me, JOSE M. HERNANDEZ a Notary Public in and for said County and State, personally appeared JAMES ALVIN MINNICK, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/~~are~~ subscribed to the within instrument and acknowledged to me that he/she/~~they~~ executed the same in his/~~her/their~~ authorized capacity(ies), and that by his/~~her/their~~ signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal

Signature Jose M. Hernandez

JOSE M. HERNANDEZ
Commission # 2082123
Notary Public - California
Imperial County
My Comm. Expires Oct 16, 2018

ATTENTION NOTARY: Although the information requested below is OPTIONAL, it could prevent fraudulent attachment of this certificate to unauthorized document.

Title or Type of Document_____

Number of Pages_____ Date of Document_____

Signer(s) Other Than Named Above_____

EEC ORIGINAL PKG

IX. MITIGATION MONITORING & REPORTING PROGRAM (MMRP)

(ATTACH DOCUMENTS, IF ANY, HERE)

S:\AllUsers\APN\054\250\036\CUP19-0028\EEC\IS 19-0033- Heber I Expansion_IS_Draft - Final_REVISED_2021.docx

EEC ORIGINAL PKG

MITIGATION, MONTORING AND REPORTING PROGRAM

EEC ORIGINAL PKG

MITIGATION, MONTORING AND REPORTING PROGRAM

MITIGATION MEASURES
PURSUANT TO THE ENVIRONMENTAL EVALUATION COMMITTEE
February 11, 2021
Heber 1 Geothermal Repower Project
[CUP#19-0028, IS #19-0033]
(APN 054-250-036 & 035-000)
(CEQA – Mitigated Negative Declaration)

Pursuant to the review and recommendations of the Imperial County Environmental Evaluation Committee (EEC) on February 11, 2021, the following Mitigation Measures are hereby proposed for the project:

BIOLOGICAL RESOURCES

MM-BIO-1: Awareness Training
A qualified biological monitor should conduct an environmental awareness training prior to the start of any construction-related activities. Special focus should be made on sensitive animals that have a PFO within the Survey Area (e.g. burrowing owl and western mastiff bat).

MM-BIO-2: Nesting Bird Survey
If construction or vegetation removal activities are to occur during the bird breeding season (February 15 – August 31) a nesting bird survey should be conducted prior to the start of construction or vegetation clearing activities. If active nests are found, an appropriate nest buffer shall be established by a qualified biologist until the nest fledges or fails naturally.

MM-BIO-3: Burrowing Owl Survey
Due to surrounding agricultural areas and low-quality but suitable habitat within the Survey Area a focused survey for burrowing owl is suggested before construction activities commence.

MM-BIO-4: Bat Survey
If modification of the existing buildings is required a focused bat survey should be performed for western mastiff bat as this species may roost in building overhangs or within piping infrastructure located within the Survey Area.

(Monitoring Agency: Imperial County Planning and Development Services; Timing: Prior to permit approval and During Construction)

GEOLOGY AND SOILS

MM-PAL-1: Paleontological Monitor
All project-related ground disturbances that could potential impact the Lake Cahuilla Beds will be monitored by a qualified paleontological monitor on a full-time basis, as these geologic units are determined to have a high paleontological sensitivity. It is anticipated that much of the proposed project site would be covered with up to eight feet of previously filled land.

MM-PAL-2: Paleontological Monitoring and Mitigation Plan
A qualified paleontologist will be retained to supervise monitoring of construction excavations and to produce a Paleontological Monitoring and Mitigation Plan for the proposed project, which would include the identification of undisturbed locations of Lake Cahuilla Beds throughout the proposed project site. The plan should also identify areas to be spot checked where ground disturbance could exceed the depth of previously filled land. Paleontological resource monitoring will include inspection of exposed rock units during active excavations within sensitive geologic sediments. The monitor will have authority to temporarily divert grading away from exposed fossils and halt construction activities in the immediate vicinity in order to professionally and efficiently recover the fossil specimens and collect associated data. The qualified paleontologist will prepare progress reports to be filed with the client and the lead agency.

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MM-PAL-3: Field Data Forms
At each fossil locality, field data forms will be used to record pertinent geologic data, stratigraphic sections will be measured, and appropriate sediment samples will be collected and submitted for analysis.

MM-PAL-4: Testing for Microfossils
Matrix sampling would be conducted to test for the presence of microfossils. Testing for microfossils would consist of screen-washing small samples (approximately 200 pounds) to determine if significant fossils are present. If microfossils are present, additional matrix samples will be collected (up to a maximum of 6,000 pounds per locality to ensure recovery of a scientifically significant microfossil sample).

MM-PAL-5: Recovered Fossils
Recovered fossils will be prepared to the point of curation, identified by qualified experts, listed in a database to facilitate analysis, and reposited in a designated paleontological curation facility. The most likely repository is the SDNHM.

MM-PAL-6: Final Monitoring and Mitigation Report to be filed
The qualified paleontologist will prepare a final monitoring and mitigation report to be filed with the client, the lead agency, and the repository.

(Monitoring Agency: Imperial County Planning and Development Services; Timing: Prior to permit approval, During Construction and After Construction)

HAZARDS AND HAZARDOUS MATERIALS

MM-FIRE-1: Certified Fire Protection Engineer Survey and Analysis
A certified fire protection engineer survey and analysis of current and proposed fire suppression and detection equipment to be performed to evaluate the current systems performance and coverage of protection. Evaluate propose fire suppression and detection equipment in conjunction with existing equipment. A full report of findings must be provided to Imperial County Fire Department for review.

MM-FIRE-2: Large Scale Evacuation Area
Isopentane leak or fire will require a large scale evacuation area and create a large scale hazardous material incident with a large operational zone. To minimize potential extremely dangerous condition to firefighters and hazardous material teams. Additional equipment may be required to adequately protect the first responders, staff and citizens in an emergency incident. This condition shall be discussed among the applicant and Imperial County Fire Chief prior to issuance of the permit for the project.

MM-FIRE-3: Automatic Fire Suppression Equipment
All isopentane above ground storage tanks shall be protected by approved automatic fire suppression equipment. All automatic fire suppression shall be installed and maintained to the current adapted fire code and regulation.

MM-FIRE-4: Automatic Fire Detection System
An approved automatic fire detection system shall be installed as per the California Fire Code. All fire detection systems shall be installed and maintained to the current adapted fire code and regulations.

MM-FIRE-5: Fire Department Access Gates and Roads
Fire department access roads and gates will be in accordance with the current adapted fire code and the facility will maintain a Knox Box for access on site.

MM-FIRE-6: Fire Code
Compliance with all required sections of the fire code.

MM-FIRE-7: Product Containment Areas
Applicant shall provide product containment area(s) for both product and water run-off in case of fire applications and retained for removal.

(Monitoring Agency: Imperial County Fire Department; Timing: Prior to permit approval, During Construction and After Construction)

EEC ORIGINAL PKG

COMMENT LETTERS

EEC ORIGINAL PKG

ADMINISTRATION / TRAINING
1078 Dogwood Road
Heber, CA 92249

Administration
Phone: (442) 265-6000
Fax: (760) 482-2427

Training
Phone: (442) 265-6011

OPERATIONS/PREVENTION
2514 La Brucherie Road
Imperial, CA 92251

Operations
Phone: (442) 265-3000
Fax: (760) 355-1482

Prevention
Phone: (442) 265-3020

January 14, 2021

RE: Conditional Use Permit #19-0028
895 Pitzer Road, Heber CA 92249

Imperial County Fire Department would like to thank you for the chance to review and comment on CUP #19-0028 for facility refurbishment, equipment installation, and removal of existing facilities.

Imperial County Fire Department has the following comments and/or requirements for the updated site plan and project description for Heber 1 Ormat Geothermal facility.

Information received is requesting (2) additional 10,000 gallon isopentane above ground storage tanks and will be installed near the new OEC units. Total amount of storage on site will be (4) 10,000 gallon tanks.
Isopentane is highly flammable liquid that fire behavior can be highly volatile and vapors may explode when mixed with air. The amount of propose storage and the locations rises concerns for Imperial County Fire Department, surrounding residents, and the surrounding community of Heber. The Emergency Response Guide:
Excerpt from ERG Guide 128 [Flammable Liquids (Water-Immiscible):
As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions.
LARGE SPILL: Consider initial downwind evacuation for at least 300 meters (1000 feet).
FIRE: If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. (ERG, 2016)
Firefighting
Fire Extinguishing Agents Not to Be Used: Water may be ineffective
Fire Extinguishing Agents: Dry chemical, foam, or carbon dioxide (USCG, 1999)
These precautions are required to be followed for all incidents including fire involving hazardous materials. To adequately protect the Imperial County Fire Department staff, facility staff, and citizens of the community of Heber and Imperial County ICFD is requesting the following mitigations measures:

- A certified fire protection engineer survey and analysis of current and proposed fire suppression and detection equipment be performed to evaluate the current systems performance and coverage of protection. Evaluate propose fire suppression and detection equipment in conjunction with existing equipment. A full report of findings must be provided to Imperial County Fire Department for review

EEC ORIGINAL PKG

ADMINISTRATION / TRAINING
1078 Dogwood Road
Heber, CA 92249

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Phone: (442) 265-3020

- Isopentane leak or fire will require a large scale evacuation area and create a large scale hazardous material incident with a large operational zone. To minimize potential extremely dangerous condition to firefighters and hazardous material teams. Additional equipment may be required to adequately protect the first responders, staff, and citizens in an emergency incident. This condition shall be discussed among the applicant and Imperial County Fire Chief prior to the issuance of the permit for the project.
- All isopentane above ground storage tanks shall be protected by approved automatic fire suppression equipment. All automatic fire suppression shall be installed and maintained to the current adapted fire code and regulation.
- An approved automatic fire detection system shall be installed as per the California Fire Code. All fire detection systems shall be installed and maintained to the current adapted fire code and regulations.
- Fire department access roads and gates will be in accordance with the current adapted fire code and the facility will maintain a Knox Box for access on site.
- Compliance with all required sections of the fire code.
- Applicant shall provide product containment areas(s) for both product and water run-off in case of fire applications and retained for removal.

~~Imperial County Fire Department is requesting further discussion with Ormat, and ICFD Fire Code Officials with regards to the Appendix H for Hazards Assessment portion of the submitted package.~~ Imperial County Fire Department, Imperial County Planning and Development Service, and the applicant has reviewed and addressed multiple concerns in Appendix H for Hazards Assessment to help mitigate potential impacts and hazards associated with the project.

Imperial County Fire Department reserves the right to comment and request additional requirements pertaining to this project regarding fire and life safety measures, California building and fire code, and National Fire Protection Association standards at a later time as we see necessary.

If you have any questions, please contact the Imperial County Fire Prevention Bureau at 442-265-3020 or 442-265-3021.

Sincerely
Andrew Loper
Lieutenant/Fire Prevention Specialist
Imperial County Fire Department
Fire Prevention Bureau

EEC ORIGINAL PKG

150 SOUTH NINTH STREET
EL CENTRO, CA 92243-2850

TELEPHONE: (442) 265-1800
FAX: (442) 265-1799

AIR POLLUTION CONTROL DISTRICT

January 12, 2021

Jim Minnick
Planning & Development Services Director
801 Main Street
El Centro, CA 92243

SUBJECT: Recirculation Conditional Use Permit 19-0028 Heber 1 Project

Dear Mr. Minnick,

The Imperial County Air Pollution Control District ("Air District") appreciates the opportunity to review and comment on the Recirculation of Conditional Use Permit 19-0028 for the Heber 1 Repower Project ("Project"). The Project will install two new Ormat Energy Converters, an Evacuation-Skid Vapor Recovery Unit and two (2) Isopentane Tanks instead of the originally planned six tanks.

Upon review the Air District has no comment.

The Air District's rules and regulations are available via the web at https://apcd.imperialcounty.org. Please feel free to call should you have questions at (442) 265-1800.

Respectfully,

Curtis Blondell
APC Environmental Coordinator

Reviewed by,
Monica N. Soucier
APC Division Manager

EEC ORIGINAL PKG

AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER

Imperial County Planning & Development Services
Planning / Building

January 6, 2021

Jim Minnick
DIRECTOR

RECIRCULATION - SECOND REQUEST FOR REVIEW AND COMMENT LETTER

The attached project and materials are being sent to you for your review and as an early notification that the following project is being requested and being processed by the County's Planning & Development Services Department. Please review the proposed project based on your agency/department area of interest, expertise, and/or jurisdiction.

To: County Agencies	State Agencies/Other	Cities/Other
☒ AG – Carlos Ortiz/Sandra Mendivil	☒ Native American Heritage Commission – Katy Sanchez	☒ Fort Yuma Quechan Indian Tribe- Jordan D. Joaquin
☒ APCD-Matt Dessert/Monica Soucier	☒ CalTrans-District 11-Melina Pereira/Maurice Eaton / Mario H. Orso	☒ Inter-Tribal Cultural Resource Protection Council-Frank Brown
☒ Public Works – John Gay/Carlos Yee	☒CA Regional Water Quality Control Board- Nadim-Shukry Zeywar/Doug Wylie / Karl Dunn	☒ Kumeyaay Cultural Repatriation Committee
☒ EHS Office – Jeff Lamoure\Jorge Perez/Alphonso Andrade/ Mario Salinas/Vanessa R. Martinez	☒Augustine Band of Cahuilla Mission Indians – Amanda Vance/Karen Kupcha	☒ Union Pacific RR – No Email
☒ IC Sheriff's Office – Thomas Garcia / Robert Benavidez	☒ Colorado River Indian Tribe-Dennis Patch	☒ Division of Oil, Gas & Geothermal Resources – John Huff
☒ IC Fire/OES Office – Alfredo Estrada Jr. / Andrew Loper	☒ Campo Band of Mission Indians-Ralph Goff	☒ Department of Toxic Substance Control Region 1 – Dave Kereazis
☒ Heber Union Elementary School District – Juan Cruz	☒ Chemehuevi Reservation-Charles Wood	☒ Imperial County Applicators – Byron Nelson
☒ County Executive Office – Tony Rouhotas / Esperanza Colio Warren	☒ Cocopah Indian Tribe-Sherry Cordova	☒Dept. of the Army Corps of Engineers-Michelle Lynch
☒ BOS District #2 – Luis Plancarte	☒ Ewiiaapaayp Tribal Office-Will Micklin	☒Manzanita Band of Kumeyaay Nation – Angela Elliot Santos
☒ IID Energy Dept.- Donald Vargas/Rudy Leal	☒ Dept. of Fish & Wildlife – Magdalena Rodriguez	☒La Posta Band of Mission Indians – Gwendolyn Parada
☒ McCabe Union Elementary District – Laura Dubbe	☒Torres-Martinez Desert Cahuilla Indians – Thomas Tortez	☒Torres-Martinez Indian Tribe – Joseph Mirelez
☒ Assessor's – Robert Menvielle	☒ Heber Public Utility District – Laura Fischer	☒ City of Calexico – David Dale
☒ CUPA – Robert Krug	☒ CHP – Arturo Proctor	☒ CalTrans-District 11 – Roger Sanchez
☒ Jamul Indian Village – Lisa Cumber	☒ Viejas Band of Kumeyaay Indians – John A. Christman	☒ Sycuan Band of the Kumeyaay Nation – Cody J. Martinez
☒ Jamul Indian Village – Erica Pinto	☒ Ewiiaapaayp Band of Jumeyaay Indians – Michael Garica	☒ Ewiiaapaayp Band of Jumeyaay Indians – Roberto Pinto

From: Mariela Moran, Planner II - (442) 265-1736 extension 1747 or via-email at ICPDScommentletters@co.imperial.ca.us

Project ID: Conditional Use Permit (CUP) #19-0028 Heber 1 Project – Ormat Nevada, Inc

Project Location: APN 054-250-036-000, 895 Pitzer Road, Heber CA 92249, Portion of East ½ of Tract 45, Township 16 South, Range 14 East, SBB&M.

Project Description: The applicant proposes to amend the existing **CUP #15-0013** and expand the Heber 1 facility by taking the existing dual-flash steam turbine generator out of service and installing two new Ormat Energy Converter (OEC) geothermal power generation units. In addition, OEC-11 and OEC-13 will be reconfigured into a combined two-level unit, OEC-11 ITLU. Additional new equipment include 2 Isopentane storage tanks and an evacuation skid/vapor recovery maintenance units. This application also proposes to extend the permitted life of the Heber 1 to 30 years (2020-2050).

Applicant: Ormat Nevada, Inc. 6140 Plumas Street, Reno, NV 89519

COMMENTS: *(attach a separate sheet if necessary)* (If no comments, please state below and mail, fax, or e-mail this sheet to Case Planner)

NO COMMENT

Name: Margo Sanchez Signature: Margo Sanchez Title: Deputy Ag Commissioner

Date: 1/12/2021 Telephone No.: 442-265-1500 E-mail: margosanchez@co.imperial.ca.us

Comments due by: January 18, 2021 **EEC Meeting:** TBD

801 Main St. El Centro, CA. 92243 (442) 265-1736 Fax (442) 265-1735 planninginfo@co.imperial.ca.us www.icpds.com

EEC ORIGINALS RKG

Kimberly Noriega

From: Mario Salinas
Sent: Thursday, January 7, 2021 10:36 AM
To: Kimberly Noriega
Cc: Michael Abraham; Mariela Moran; Carina Gomez; Gabriela Robb; John Robb; Maria Scoville; Rosa Soto; Valerie Grijalva
Subject: RE: Recirculation of Request for Comments CUP#19-0028 PART 1

Follow Up Flag: Follow up
Flag Status: Flagged

Good morning Kimberly,

Pertaining to CUP #19-0028, Division of Environmental Health does not have any comments at this time.

Thank you,

Mario Salinas, MBA
Environmental Health Compliance Specialist I
Imperial County Public Health Department
Division of Environmental Health
797 Main Street Suite B, El Centro, CA 92243
mariosalinas@co.imperial.ca.us
Phone: (442) 265-1888
Fax: (442) 265-1903
www.icphd.org

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JAN 07 2021
IMPERIAL COUNTY
PLANNING & DEVELOPMENT SERVICES

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From: Kimberly Noriega <KimberlyNoriega@co.imperial.ca.us>
Sent: Wednesday, January 6, 2021 4:02 PM
To: Carlos Ortiz <CarlosOrtiz@co.imperial.ca.us>; Sandra Mendivil <SandraMendivil@co.imperial.ca.us>; Jolene Dessert <JoleneDessert@co.imperial.ca.us>; Matt Dessert <MattDessert@co.imperial.ca.us>; Monica Soucier <MonicaSoucier@co.imperial.ca.us>; Luis Plancarte <LuisPlancarte@co.imperial.ca.us>; Tony Rouhotas <TonyRouhotas@co.imperial.ca.us>; Esperanza Colio <EsperanzaColio@co.imperial.ca.us>; Vanessa Ramirez <VanessaRamirez@co.imperial.ca.us>; Alphonso Andrade <AlphonsoAndrade@co.imperial.ca.us>; Jorge Perez <JorgePerez@co.imperial.ca.us>; Jeff Lamoure <JeffLamoure@co.imperial.ca.us>; Mario Salinas <MarioSalinas@co.imperial.ca.us>; Alfredo Estrada Jr <AlfredoEstradaJr@co.imperial.ca.us>; Andrew Loper <AndrewLoper@co.imperial.ca.us>; John Gay <JohnGay@co.imperial.ca.us>; Carlos Yee <CarlosYee@co.imperial.ca.us>; rbenavidez@icso.org; 'Vargas, Donald A' <DVargas@IID.com>; rzleal@iid.com; ddale@calexico.ca.gov; jcruz@hesdk8.org; jdubbe@mccabeschool.net; smoorhouse@chp.ca.gov; Maurice.Eaton@dot.ca.gov;

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beth.landrum@dot.ca.gov; Roger Sanchez <roger.sanchez-rangel@dot.ca.gov>; Robert Krug <Robert.Krug@dtsc.ca.gov>; kal.dunn@waterboards.ca.gov; magdalena.rodriguez@wildlife.ca.gov; dave.kereazis@dtsc.ca.gov; john.c.huff@conservation.ca.gov; hhaines@augustinetribe.com; marcusuero@campo-nsn.gov; chairman@cit-nsn.gov; cocotcsec@cocopah.com; tashina.harper@crit-nsn.gov; wmicklin@leaningrock.net; Quechan Historic Preservation Officer <historicpreservation@quechantribe.com>; frankbrown6928@gmail.com; tribalsecretary@quechantribe.com; ljbirdsinger@aol.com; lp13boots@aol.com; thomas.tortez@torresmartinez-nsn.gov; joseph.mirelez@torresmartinez-nsn.gov; katy.sanchez@nahc.ca.gov; sha-lcr-webcomments@usbr.gov
Cc: Michael Abraham <MichaelAbraham@co.imperial.ca.us>; Mariela Moran <MarielaMoran@co.imperial.ca.us>; Carina Gomez <CarinaGomez@co.imperial.ca.us>; Gabriela Robb <GabrielaRobb@co.imperial.ca.us>; John Robb <JohnRobb@co.imperial.ca.us>; Maria Scoville <mariascoville@co.imperial.ca.us>; Rosa Soto <RosaSoto@co.imperial.ca.us>; Valerie Grijalva <ValerieGrijalva@co.imperial.ca.us>
Subject: Recirculation of Request for Comments CUP#19-0028 PART 1

Good Afternoon,

Please see attached Recirculation Request for Comments Packet for **CUP#19-0028** Heber 1 Project – Ormat Nevada, Inc. Comments are due by **January 18, 2021 at 5:00 PM.**

Recirculated to review revised Heber 1 Repower Project Application; the project description was updated to include the addition of only two (2) 10,000 gallons isopentane tanks instead of six (6) tanks, a revised Air Quality Analysis Summary and a Revised Hazards Assessment.

In an effort to increase the efficiency at which information is distributed and reduce paper usage, the Request for Comments Packet is being sent to you via this email.

Should you have any questions regarding this project, please feel free to contact Planner Mariela Moran at (442)265-1736 ext. 1747 or submit your comment letters to icpdscommentletters@co.imperial.ca.us

(Due to attachment size, files continue on a 2nd & 3rd email; PART 1/3)

Kimberly Noriega
Office Assistant III

Imperial County
Planning and Development Services
801 Main St.
El Centro, CA 92243
☎**Phone:** (442) 265-1736
☎**Fax:** (442) 265-1735

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IID

www.iid.com

A century of service. *Since 1911*

January 7, 2021

Ms. Mariela Moran
Planner II
Planning & Development Services Department
County of Imperial
801 Main Street
El Centro, CA 92243

SUBJECT: Heber 1 Geothermal Expansion Project CUP Application No. 19-0028 (Recirculated)

Dear Ms. Moran:

On January 6, 2021, the Imperial Irrigation District received from the Imperial County Planning & Development Services Dept. a second request for agency comments on Conditional Use Permit application no. 19-0028. The applicant, Ormat Nevada, Inc.; proposes to amend CUP no. 15-0013 to expand the Heber 1 geothermal facility located at 895 Pitzer Road, Heber, California, by taking the existing dual-flash steam turbine generator out of service and installing two (2) new Ormat Energy Converter geothermal power generation units as well as storage tanks and an evacuation skid/vapor recovery maintenance unit. The application also proposes to extend the term of the CUP to 30 years, from 2020 to 2050.

The application is being recirculated because the project description was revised to include only two (2) 10,000 gallons isopentane tanks instead of six (6) tanks, and the Air Quality Analysis Summary and a Revised Hazards Assessment have been updated.

The IID has reviewed the project documents and finds that the comments provided in the January 23, 2020 district letter (see attached letter) continue to apply.

Should you have any questions, please do not hesitate to contact me at 760-482-3609 or at dvargas@iid.com. Thank you for the opportunity to comment on this matter.

Respectfully,

Donald Vargas
Compliance Administrator II

RECEIVED
JAN 07 2021
IMPERIAL COUNTY
PLANNING & DEVELOPMENT SERVICES

Enrique B. Martinez – General Manager
Mike Pacheco – Manager, Water Dept.
Marilyn Del Bosque Gilbert – Manager, Energy Dept.
Sandra Blain – Deputy Manager, Energy Dept.,
Constance Bergmark – Mgr. of Planning & Eng./Chief Elect. Engineer, Energy Dept.
Jamie Asbury – Assoc. General Counsel
Vance Taylor – Asst. General Counsel
Michael P. Kemp – Superintendent, Regulatory & Environmental Compliance
Laura Cervantes. – Supervisor, Real Estate
Jessica Humes – Environmental Project Mgr. Sr., Water Dept.

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IID

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Since 1911

January 23, 2020

Ms. Mariela Moran
Planner II
Planning & Development Services Department
County of Imperial
801 Main Street
El Centro, CA 92243

SUBJECT: Heber 1 Geothermal Expansion Project CUP Application No. 19-0028

Dear Ms. Moran:

On January 8, 2020, the Imperial Irrigation District received from the Imperial County Planning & Development Services Dept. a request for agency comments on Conditional Use Permit application no. 19-0028. The applicant, Ormat Nevada, Inc.; proposes to amend CUP no. 15-0013 to expand the Heber 1 geothermal facility located at 895 Pitzer Road, Heber, California, by taking the existing dual-flash steam turbine generator out of service and installing two (2) new Ormat Energy Converter geothermal power generation units as well as storage tanks and an evacuation skid/vapor recovery maintenance unit. The application also proposes to extend the term of the CUP to 30 years, from 2020 to 2050.

The Imperial Irrigation District has reviewed the information and has the following comments:

1. For electrical service for the project, the applicant should be advised to contact Joel Lopez, IID Customer Project Development Planner, at (760) 482-3444 or e-mail Mr. Lopez at jflopez@iid.com to initiate the customer service application process. In addition to submitting a formal application (available for download at the IID website http://www.iid.com/home/showdocument?id=12923), the applicant will be required to submit a complete set of approved plans (including CAD files), project schedule, estimated in-service date, one-line diagram of facility, electrical loads, panel size, voltage, and the applicable fees, permits, easements and environmental compliance documentation pertaining to the provision of electrical service to the project. The applicant shall be responsible for all costs and mitigation measures related to providing electrical service to the project.

2. IID facilities that may be impacted include the Daffodil Canal (the project site is located adjacent to and west of the Daffodil Canal), Daffodil Lateral 1 and Dogwood Canal. However, it appears that the expansion project will not affect IID's canals or laterals. If this should occur, the applicant will be required to contact IID Water Department Engineering Services section prior to final project design. IID Water Dept. ESS can be contacted at (760) 339-9265 for further information.

3. The applicant may not use IID's canal or drain banks to access the project site. Any abandonment of easements or facilities will be approved by IID based on systems (irrigation, drainage, power, etc.) needs.

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4. Any construction or operation on IID property or within its existing and proposed right of way or easements including but not limited to: surface improvements such as proposed new streets, driveways, parking lots, landscape; and all water, sewer, storm water, or any other above ground or underground utilities; will require an encroachment permit, or encroachment agreement (depending on the circumstances). A copy of the IID encroachment permit application and instructions are available at the district website http://www.iid.com/departments/real-estate. The IID Real Estate Section should be contacted at (760) 339-9239 for additional information regarding encroachment permits or agreements.

5. In addition to IID's recorded easements, IID claims, at a minimum, a prescriptive right of way to the toe of slope of all existing canals and drains. Where space is limited and depending upon the specifics of adjacent modifications, the IID may claim additional secondary easements/prescriptive rights of ways to ensure operation and maintenance of IID's facilities can be maintained and are not impacted and if impacted mitigated. Thus, IID should be consulted prior to the installation of any facilities adjacent to IID's facilities. Certain conditions may be placed on adjacent facilities to mitigate or avoid impacts to IID's facilities.

6. Any new, relocated, modified or reconstructed IID facilities required for and by the project (which can include but is not limited to electrical utility substations, electrical transmission and distribution lines, etc.) need to be included as part of the project's CEQA and/or NEPA documentation, environmental impact analysis and mitigation. Failure to do so will result in postponement of any construction and/or modification of IID facilities until such time as the environmental documentation is amended and environmental impacts are fully analyzed. **Any and all mitigation necessary as a result of the construction, relocation and/or upgrade of IID facilities is the responsibility of the project proponent.**

Should you have any questions, please do not hesitate to contact me at 760-482-3609 or at dvargas@iid.com. Thank you for the opportunity to comment on this matter.

Respectfully,

Donald Vargas
Compliance Administrator II

Enrique B. Martinez – General Manager
Mike Pacheco – Manager, Water Dept.
Marilyn Del Bosque Gilbert – Manager, Energy Dept.
Jamie Asbury – Deputy Manager, Energy Dept., Operations
Enrique De Leon – Asst. Mgr., Energy Dept., Distr., Planning, Eng. & Customer Service
Vance Taylor – Asst. General Counsel
Robert Laurie – Outside Counsel
Michael P. Kemp – Superintendent, Regulatory & Environmental Compliance
Laura Cervantes, – Supervisor, Real Estate
Jessica Humes – Environmental Project Mgr. Sr., Water Dept.

EEC ORIGINAL PKG

ADMINISTRATION / TRAINING
1078 Dogwood Road
Heber, CA 92249

Administration
Phone: (442) 265-6000
Fax: (760) 482-2427

Training
Phone: (442) 265-6011

OPERATIONS/PREVENTION
2514 La Brucherie Road
Imperial, CA 92251

Operations
Phone: (442) 265-3000
Fax: (760) 355-1482

Prevention
Phone: (442) 265-3020

May 11, 2020

RE: Conditional Use Permit #19-0028
895 Pitzer Road, Heber CA 92249

Imperial County Fire Department would like to thank you for the chance to review and comment on CUP #19-0028 for facility refurbishment, equipment installation, and removal of existing facilities.

Imperial County Fire Department has the following comments and/or requirements for the Heber 1 Ormat Geothermal facility.

Information received is requesting (6) additional 10,000 gallon isopentane above ground storage tanks and will be installed near the new OEC units. Total amount of storage on site will be (8) 10,000 gallon tanks.
Isopentane is highly flammable liquid that fire behavior can be highly volatile and vapors may explode when mixed with air. The amount of propose storage and the locations rises concerns for Imperial County Fire Department, surrounding residents, and the surrounding community of Heber. The Emergency Response Guide:
Excerpt from ERG Guide 128 [Flammable Liquids (Water-Immiscible):
As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions.
LARGE SPILL: Consider initial downwind evacuation for at least 300 meters (1000 feet).
FIRE: If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. (ERG, 2016)
Firefighting
Fire Extinguishing Agents Not to Be Used: Water may be ineffective
Fire Extinguishing Agents: Dry chemical, foam, or carbon dioxide (USCG, 1999)
These precautions are required to be followed for all incidents including fire involving hazardous materials. To adequately protect the Imperial County Fire Department staff, facility staff, and citizens of the community of Heber and Imperial County ICFD is requesting the following mitigations measures:

- A certified fire protection engineer survey and analysis of current and proposed fire suppression and detection equipment be performed to evaluate the current systems performance and coverage of protection. Evaluate propose fire suppression and detection equipment in conjunction with existing equipment. A full report of findings must be provided to Imperial County Fire Department for review

EEC ORIGINAL PKG

ADMINISTRATION / TRAINING
1078 Dogwood Road
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Fax: (760) 355-1482

Prevention
Phone: (442) 265-3020

- Isopentane leak or fire will require a large scale evacuation area and create a large scale hazardous material incident with a large operational zone. To minimize potential extremely dangerous condition to firefighters and hazardous material teams. Additional equipment may be required to adequately protect the first responders, staff, and citizens in an emergency incident. This condition shall be discussed among the applicant and Imperial County Fire Chief prior to the issuance of the permit for the project.
- All isopentane above ground storage tanks shall be protected by approved automatic fire suppression equipment. All automatic fire suppression shall be installed and maintained to the current adapted fire code and regulation.
- An approved automatic fire detection system shall be installed as per the California Fire Code. All fire detection systems shall be installed and maintained to the current adapted fire code and regulations.
- Fire department access roads and gates will be in accordance with the current adapted fire code and the facility will maintain a Knox Box for access on site.
- Compliance with all required sections of the fire code.
- Applicant shall provide product containment areas(s) for both product and water run-off in case of fire applications and retained for removal.

Imperial County Fire Department is requesting further discussion with Ormat, and ICFD Fire Code Officials with regards to the Appendix H for Hazards Assessment portion of the submitted package.

Imperial County Fire Department reserves the right to comment and request additional requirements pertaining to this project regarding fire and life safety measures, California building and fire code, and National Fire Protection Association standards at a later time as we see necessary.

If you have any questions, please contact the Imperial County Fire Prevention Bureau at 442-265-3020 or 442-265-3021.

Sincerely
Andrew Loper
Lieutenant/Fire Prevention Specialist
Imperial County Fire Department
Fire Prevention Bureau

EEC ORIGINAL PKG

150 SOUTH NINTH STREET
EL CENTRO, CA 92243-2850

TELEPHONE: (442) 265-1800
FAX: (442) 265-1799

AIR POLLUTION CONTROL DISTRICT

RECEIVED
MAY 27 2020
IMPERIAL COUNTY
PLANNING & DEVELOPMENT SERVICES

May 27, 2020

Mr. Jim Minnick
Planning & Development Services Director
801 Main St.
El Centro, CA 92243

SUBJECT: Second Review of Condition Use Permit 19-0028 & Initial Study 19-0033—Heber 1 Project (Ormat)

Dear Mr. Minnick:

Following the second review of Conditional Use Permit 19-0028 and Initial Study 19-0033 (collectively called "Project"), the Imperial County Air Pollution Control District ("Air District") thanks the applicant for the correction in the previous comments dated January 17, 2020. The Air District understands that no new diesel generator will be added to the existing system. The amendments to the existing CUP and planned equipment modifications will require that the applicant contact Mr. Jesus Ramirez, Permitting & Engineering Division Manager, to discuss modifications to their current permit. The applicant should contact Mr. Emmanuel Sanchez, Enforcement Division Manager, to discuss the possible need for a Construction Dust Control Plan. Additionally, the applicant must notify the Air District 10 days prior to the start of any construction activities. Finally, the Air District requests a copy of the Draft CUP prior to recording.

The Air District's rule book can be accessed via the internet at http://www.co.imperial.ca.us/AirPollution. Click on "Rules & Regulations" under "Resources" on the left side of the page. Should you have questions, please call our office at (442) 265-1800.

Sincerely,

Curtis Blondell
APC Environmental Coordinator

Reviewed by,
Monica Soucier
APC Division Manager

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MAY 27 2020

IMPERIAL COUNTY
PLANNING & DEVELOPMENT SERVICES

May 27, 2020

Ms. Mariela Moran
Planner II
Planning & Development Services Department
County of Imperial
801 Main Street
El Centro, CA 92243

SUBJECT: Heber 1 Geothermal Expansion Project CUP Application No. 19-0028 (Revised)

Dear Ms. Moran:

On May 19, 2020 the IID received from the Imperial County Planning & Development Services Dept., a request for agency comments on revised Conditional Use Permit application no. 19-0028. The applicant, Ormat Nevada, Inc.; proposes to amend CUP no. 15-0013 to expand the Heber 1 geothermal facility located at 895 Pitzer Road, Heber, California, by taking the existing dual-flash steam turbine generator out of service and installing two new Ormat Energy Converter geothermal power generation units as well as storage tanks and an evacuation skid/vapor recovery maintenance unit. In addition, two existing OECs will be reconfigured into a two-level unit. These upgrades will result in a water usage of 2,300 acre-ft./year and a total energy production of 52 MW net and 78.2 MW gross. The application also proposes to extend the term of the CUP to 30 years (from 2020 to 2050).

The IID has reviewed the revised CUP application and finds that the comments provided in the January 23, 2020 district letter on the original application (see attached letter) continue to apply.

Should you have any questions, please do not hesitate to contact me at 760-482-3609 or at dvargas@iid.com. Thank you for the opportunity to comment on this matter.

Respectfully,

Donald Vargas
Compliance Administrator II

Enrique B. Martinez – General Manager
Mike Pacheco – Manager, Water Dept.
Marilyn Del Bosque Gilbert – Manager, Energy Dept.
Sandra Blain – Deputy Manager, Energy Dept.,
Jesus Martinez – Engineer Principal, Energy Dept., Transmission Planning
Jamie Asbury – Asst. General Counsel
Vance Taylor – Asst. General Counsel
Robert Laurie – Outside Counsel
Michael P. Kemp – Superintendent, Regulatory & Environmental Compliance
Laura Cervantes. – Supervisor, Real Estate
Jessica Humes – Environmental Project Mgr. Sr., Water Dept.

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January 23, 2020

Ms. Mariela Moran
Planner II
Planning & Development Services Department
County of Imperial
801 Main Street
El Centro, CA 92243

SUBJECT: Heber 1 Geothermal Expansion Project CUP Application No. 19-0028

Dear Ms. Moran:

On January 8, 2020, the Imperial Irrigation District received from the Imperial County Planning & Development Services Dept. a request for agency comments on Conditional Use Permit application no. 19-0028. The applicant, Ormat Nevada, Inc.; proposes to amend CUP no. 15-0013 to expand the Heber 1 geothermal facility located at 895 Pitzer Road, Heber, California, by taking the existing dual-flash steam turbine generator out of service and installing two (2) new Ormat Energy Converter geothermal power generation units as well as storage tanks and an evacuation skid/vapor recovery maintenance unit. The application also proposes to extend the term of the CUP to 30 years, from 2020 to 2050.

The Imperial Irrigation District has reviewed the information and has the following comments:

1. For electrical service for the project, the applicant should be advised to contact Joel Lopez, IID Customer Project Development Planner, at (760) 482-3444 or e-mail Mr. Lopez at jflopez@iid.com to initiate the customer service application process. In addition to submitting a formal application (available for download at the IID website http://www.iid.com/home/showdocument?id=12923), the applicant will be required to submit a complete set of approved plans (including CAD files), project schedule, estimated in-service date, one-line diagram of facility, electrical loads, panel size, voltage, and the applicable fees, permits, easements and environmental compliance documentation pertaining to the provision of electrical service to the project. The applicant shall be responsible for all costs and mitigation measures related to providing electrical service to the project.

2. IID facilities that may be impacted include the Daffodil Canal (the project site is located adjacent to and west of the Daffodil Canal), Daffodil Lateral 1 and Dogwood Canal. However, it appears that the expansion project will not affect IID's canals or laterals. If this should occur, the applicant will be required to contact IID Water Department Engineering Services section prior to final project design. IID Water Dept. ESS can be contacted at (760) 339-9265 for further information.

3. The applicant may not use IID's canal or drain banks to access the project site. Any abandonment of easements or facilities will be approved by IID based on systems (irrigation, drainage, power, etc.) needs.

EEC ORIGINAL PKG

4. Any construction or operation on IID property or within its existing and proposed right of way or easements including but not limited to: surface improvements such as proposed new streets, driveways, parking lots, landscape; and all water, sewer, storm water, or any other above ground or underground utilities; will require an encroachment permit, or encroachment agreement (depending on the circumstances). A copy of the IID encroachment permit application and instructions are available at the district website http://www.iid.com/departments/real-estate. The IID Real Estate Section should be contacted at (760) 339-9239 for additional information regarding encroachment permits or agreements.

5. In addition to IID's recorded easements, IID claims, at a minimum, a prescriptive right of way to the toe of slope of all existing canals and drains. Where space is limited and depending upon the specifics of adjacent modifications, the IID may claim additional secondary easements/prescriptive rights of ways to ensure operation and maintenance of IID's facilities can be maintained and are not impacted and if impacted mitigated. Thus, IID should be consulted prior to the installation of any facilities adjacent to IID's facilities. Certain conditions may be placed on adjacent facilities to mitigate or avoid impacts to IID's facilities.

6. Any new, relocated, modified or reconstructed IID facilities required for and by the project (which can include but is not limited to electrical utility substations, electrical transmission and distribution lines, etc.) need to be included as part of the project's CEQA and/or NEPA documentation, environmental impact analysis and mitigation. Failure to do so will result in postponement of any construction and/or modification of IID facilities until such time as the environmental documentation is amended and environmental impacts are fully analyzed. **Any and all mitigation necessary as a result of the construction, relocation and/or upgrade of IID facilities is the responsibility of the project proponent.**

Should you have any questions, please do not hesitate to contact me at 760-482-3609 or at dvargas@iid.com. Thank you for the opportunity to comment on this matter.

Respectfully,

Donald Vargas
Compliance Administrator II

Enrique B. Martinez – General Manager
Mike Pacheco – Manager, Water Dept
Marilyn Del Bosque Gilbert – Manager, Energy Dept
Jamie Asbury – Deputy Manager, Energy Dept., Operations
Enrique De Leon – Asst. Mgr., Energy Dept., Distr., Planning, Eng. & Customer Service
Vance Taylor – Asst. General Counsel
Robert Laurie – Outside Counsel
Michael P. Kemp – Superintendent, Regulatory & Environmental Compliance
Laura Cervantes – Supervisor, Real Estate
Jessica Humes – Environmental Project Mgr. Sr., Water Dept

EEC ORIGINAL PKG

Heber Public Utility District

1078 Dogwood Rd., Ste. 103 · P.O. Box "H"
Heber, CA 92249-0470
760-482-2440 (P) – 760-353-9951 (Fax)

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MAY 28 2020

IMPERIAL COUNTY
PLANNING & DEVELOPMENT SERVICES

Mr. David Black, Planner IV
Imperial County Planning and Development Services
801 Main Street
El Centro, CA 92243

RE: COMMENT LETTER REGARDING CONDITIONAL USE PERMIT (CUP) #19-0028 HEBER I PROJECT

Dear Mr. Black:

Thank you for allowing us the opportunity to provide comments regarding the above-referenced project. The proposed project is located within Heber Public Utility District's Sphere of Influence. The following comments are offered:

1. **Hazard Assessment:** The project description on the Request for Review and Comment Letter identifies the installation of 6 isopentane storage tanks. The Reclamation Plan Application Form also identifies a total of 6 isopentane storage tanks at 10,000 gallons each. The Hazard Assessment is based on the release of a single 10,000-gallon isopentane tank. There are residential units and an elementary school within one mile of the proposed location of the isopentane tanks. Please clarify how the release of a single tank affects the other tanks causing additional release.

   Section 4.6 of the Hazard Assessment states that "[a]n overpressure of 1 psi is unlikely to have serious direct effects on people," yet it continues on to say that an overpressure "can result in injuries to people, and shattering of glass windows, which may cause skin laceration from flying glass". These two statements are contradictory. Injuries to people is a serious direct effect.

2. **Miscellaneous:** Heber Public Utility District (HPUD) owns a looped domestic water line along Pitzer Road along the frontage of the project site. ORMAT's internal pipelines are located within close proximity to HPUD's domestic water pipeline. Hot water running through ORMAT's pipeline caused our pipelines to burst. Measures must be put in place to ensure protection for HPUD's domestic water pipeline.

Once again, we thank you for the opportunity to comment. Should you have any questions, please feel free to contact me at (760)482-2440 or via email at lfischer@heber.ca.gov.

Sincerely,

Laura Fischer P.A
General Manager

EEC ORIGINAL PKG

COUNTY OF IMPERIAL

PUBLIC HEALTH DEPARTMENT

JANETTE ANGULO, M.P.A.
Director

STEVEN MUNDAY, M.P.H., M.S.
Health Officer

May 27, 2020

Mariela Moran, Planner II
IC Planning & Development Services
801 Main Street
El Centro, CA 92243

Subject: Environmental Health Comments for Proposed Conditional Use Permit #19-0028

Dear Ms. Moran:

The Imperial County Division of Environmental Health (DEH) is providing the comments below in response to the request for review and comments for Conditional Use Permit #19-0028. The project as described is installation of 4 air coolers, 3 Ormat Energy Converters, and 6 new Isopentane Ground Storage Tanks at 895 Pitzer Road, Heber CA. The property is also described as Assessor's Parcel Number 054-250-036-000.

Please consider the following comments for the proposed project.

1. Any potential discharge of any processed water, the applicant must contact the Water Regional Board.
2. As per the Isopentane above ground tanks, the applicant must contact the Department of Toxic Substances Control to be regulated by the Imperial County Certified Unified Program Agency (CUPA).

If you have any questions, please do not hesitate to contact me at 442-265-1888.

Sincerely,

Mario Salinas

Mario Salinas
Environmental Compliance Specialist I

EEC ORIGINAL PKG

Mariela Moran

From: Maria Scoville
Sent: Thursday, January 9, 2020 5:04 PM
To: Mariela Moran
Cc: Rosa Soto; Carina Gomez; Maria Scoville; Michael Abraham
Subject: FW: Request for Review and Comment Letter for CUP19-0028

Ms. Mariela,

Please see email below ↓ ↓

From: Krug, Robert@DTSC <Robert.Krug@dtsc.ca.gov>
Sent: Thursday, January 9, 2020 5:00 PM
To: Maria Scoville <mariascoville@co.imperial.ca.us>
Subject: RE: Request for Review and Comment Letter for CUP19-0028

CAUTION: This email originated outside our organization; please use caution.

Hi Maria,
When this retrofit is completed they need to update their CERS information if there are any changes in Hazardous Materials, Hazardous Waste, ASTs with petroleum, USTs, or CalARP thresholds, and they need to notify the DTSC Imperial CUPA at that time.
Bob

Robert Krug
Supervisor / Senior Environmental Scientist
DTSC Imperial CUPA
627 Wake Avenue
El Centro, CA 92243
Robert.Krug@dtsc.ca.gov
(760) 336-8919 Work
(760) 457-7376 Cell

From: Maria Scoville <mariascoville@co.imperial.ca.us>
Sent: Wednesday, January 8, 2020 5:04 PM
To: County Ag Commissioner, Imperial@CDPR <carlosortiz@co.imperial.ca.us>; Sandra Mendivil <SandraMendivil@co.imperial.ca.us>; Matt Dessert <MattDessert@co.imperial.ca.us>; Soucier, Monica@Imperial <monicasoucier@co.imperial.ca.us>; Luis Plancarte <LuisPlancarte@co.imperial.ca.us>; Esperanza Colio <EsperanzaColio@co.imperial.ca.us>; Rouhotas, Tony@IMP <tonyrouhotas@co.imperial.ca.us>; Jeff Lamoure <JeffLamoure@co.imperial.ca.us>; Vanessa Ramirez <VanessaRamirez@co.imperial.ca.us>; Jorge Perez <JorgePerez@co.imperial.ca.us>; Alphonso Andrade <AlphonsoAndrade@co.imperial.ca.us>; Mario Salinas <MarioSalinas@co.imperial.ca.us>; Robert Menvielle <RobertMenvielle@co.imperial.ca.us>; Alfredo Estrada Jr <AlfredoEstradaJr@co.imperial.ca.us>; Robert Malek <RobertMalek@co.imperial.ca.us>; Andrew Loper <AndrewLoper@co.imperial.ca.us>; John Gay <JohnGay@co.imperial.ca.us>; Carlos Yee <CarlosYee@co.imperial.ca.us>; rbenavidez@icso.org; 'Donald Vargas - IID' <DVargas@IID.com>; rleal@iid.com; ddale@calexico.ca.gov; jcruz@hesdk8.org; ldubbe@mccabeschool.net; lfischer@heber.ca.gov; aproctor@chp.ca.gov; Eaton, Maurice A@DOT <maurice.eaton@dot.ca.gov>; Orso, Mario H@DOT <mario.orso@dot.ca.gov>; Dunn, Kai@Waterboards

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<Kai.Dunn@waterboards.ca.gov>; Rodriguez, Magdalena@Wildlife <Magdalena.Rodriguez@wildlife.ca.gov>; Kereazis, Dave@DTSC <Dave.Kereazis@dtsc.ca.gov>; Shukry-Zeywar, Nadim@Waterboards <Nadim.Shukry-Zeywar@waterboards.ca.gov>; doug.wylie@waterboards.ca.gov; roger.sanchez@dot.ca.gov; Krug, Robert@DTSC <Robert.Krug@dtsc.ca.gov>; Huff, John@DOC <John.C.Huff@conservation.ca.gov>; hhaines@augustinetribe.com; chairman@cit-nsn.gov; wmicklin@leaningrock.net; lp13boots@aol.com; Sanchez, Katy@NAHC <Katy.Sanchez@nahc.ca.gov>; rgoff@campo-nsn.gov; tashina.harper@crit-nsn.gov; frankbrown@viejas-nsn.gov; Lorrie J. LeLe <ljlele@adamsbroadwell.com>; Thomas.tortez@torresmartinez-nsn.gov; Quechan Indian Tribe <tribalsecretary@quechantribe.com>; historicpreservation@quechantribe.com; cocotcsec@cocopah.com; Byron Nelson - IC Applicators <byronfrontier@yahoo.com>; lcumper@jiv-nsn.gov; epinto@jiv-nsn.gov; michaelg@leaningrock.net; wmicklin@leaningrock.net; ssilva@sycuan-sns.gov
Cc: Mariela Moran <MarielaMoran@co.imperial.ca.us>; Michael Abraham <MichaelAbraham@co.imperial.ca.us>; Rosa Soto <RosaSoto@co.imperial.ca.us>; Carina Gomez <CarinaGomez@co.imperial.ca.us>; Jim Minnick <JimMinnick@co.imperial.ca.us>; Gabriela Robb <GabrielaRobb@co.imperial.ca.us>; John Robb <JohnRobb@co.imperial.ca.us>; Maria Scoville <mariascoville@co.imperial.ca.us>; Rosa Soto <RosaSoto@co.imperial.ca.us>
Subject: Request for Review and Comment Letter for CUP19-0028

Good afternoon Commenting Agencies,

I have attached the Request for Review and Comment Letter for CUP19-0028 as submitted by ORMAT Nevada, Inc. this project is located at 895 Pitzer Road, Heber, CA 92249, also identified as APN 054-250-036-000.

Should you have any questions in regards to the attached letter, feel free to contact Mariela Moran, Planner II at 442-265-1736 or by email at marielamoran@co.imperial.ca.us

Thank you
Maria Scoville

EEC ORIGINAL PKG

Mariela Moran

From: Quechan Historic Preservation Officer <historicpreservation@quechantribe.com>
Sent: Friday, January 10, 2020 2:29 PM
To: Maria Scoville
Subject: RE: Request for Review and Comment Letter for CUP19-0028

CAUTION: This email originated outside our organization; please use caution.

This email is to inform you that we have no comments on this project.

From: Maria Scoville [mailto:mariascoville@co.imperial.ca.us]
Sent: Wednesday, January 08, 2020 6:04 PM
To: Carlos Ortiz; Sandra Mendivil; Matt Dessert; Monica Soucier; Luis Plancarte; Esperanza Colio; Tony Rouhotas; Jeff Lamoure; Vanessa Ramirez; Jorge Perez; Alphonso Andrade; Mario Salinas; Robert Menvielle; Alfredo Estrada Jr; Robert Malek; Andrew Loper; John Gay; Carlos Yee; rbenavidez@icso.org; 'Donald Vargas - IID'; rleal@iid.com; ddale@calexico.ca.gov; jcruz@hesdk8.org; ldubbe@mccabeschool.net; lfischer@heber.ca.gov; aproctor@chp.ca.gov; Maurice Eaton - CALTRANS DIST 11; Mario.Orso@dot.ca.gov; kai.Dunn@waterboards.ca.gov; magdalena.rodriguez@wildlife.ca.gov; Dave.kereazis@dtsc.ca.gov; nadim.shukry-zeywar@waterboards.ca.gov; doug.wylie@waterboards.ca.gov; roger.sanchez@dot.ca.gov; Robert Krug; john.c.huff@conservation.ca.gov; hhaines@augustinetribe.com; chairman@cit-nsn.gov; wmicklin@leaningrock.net; lp13boots@aol.com; katy.sanchez@nahc.ca.gov; rgoff@campo-nsn.gov; tashina.harper@crit-nsn.gov; frankbrown@viejas-nsn.gov; Lorrie J. LeLe; Thomas.tortez@torresmartinez-nsn.gov; Quechan Indian Tribe ; historicpreservation@quechantribe.com; cocotcsec@cocopah.com; Byron Nelson - IC Applicators; lcumper@jiv-nsn.gov; epinto@jiv-nsn.gov; michaelg@leaningrock.net; wmicklin@leaningrock.net; ssilva@sycuan-sns.gov
Cc: Mariela Moran; Michael Abraham; Rosa Soto; Carina Gomez; Jim Minnick; Gabriela Robb; John Robb; Maria Scoville; Rosa Soto
Subject: Request for Review and Comment Letter for CUP19-0028

Good afternoon Commenting Agencies,

I have attached the Request for Review and Comment Letter for CUP19-0028 as submitted by ORMAT Nevada, Inc. this project is located at 895 Pitzer Road, Heber, CA 92249, also identified as APN 054-250-036-000.

Should you have any questions in regards to the attached letter, feel free to contact Mariela Moran, Planner II at 442-265-1736 or by email at marielamoran@co.imperial.ca.us

Thank you
Maria Scoville

EEC ORIGINAL PKG

150 SOUTH NINTH STREET
EL CENTRO, CA 92243-2850

TELEPHONE: (442) 265-1800
FAX: (442) 265-1799

AIR POLLUTION CONTROL DISTRICT

January 17, 2020

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JAN 17 2020
IMPERIAL COUNTY
PLANNING & DEVELOPMENT SERVICES

Mr. Jim Minnick
Planning & Development Services Director
801 Main St.
El Centro, CA 92243

SUBJECT: Condition Use Permit 19-0028 & Initial Study 19-0033—Heber 1 Project (Ormat)

Dear Mr. Minnick:

The Imperial County Air Pollution Control District ("Air District") would like to thank you for the opportunity to review Conditional Use Permit (CUP) 19-0028 and Initial Study 19-0033 (collectively called "Project"). The Project would remove from service the existing dual-flash steam turbine generator and install two new Ormat Energy Converters (OEC) geothermal power generation units. In addition, the OEC-11 and OEC-13 power generators will be reconfigured into a combined two-level unit called OEC-11. Additional equipment including motive fluid (isopentane) storage tanks, an evacuation skid/vapor recovery maintenance unit (VRMU), and a diesel engine for emergency use will be added to the facility. The Project will extend the permitted life of Heber 1 to 30 years (2020 through 2050). The Project location is located at 895 Pitzer Road in Heber, California (APN 054-250-036-000). The Project applicant is Ormat Nevada, Inc.

Upon review, the Air District requests that the applicant contact Mr. Emmanuel Sanchez, Enforcement Division Manager, to discuss the possible need for a Construction Dust Control Plan. Additionally, the applicant must notify the Air District 10 days prior to the start of any construction activities. Finally, the Air District requests a copy of the Draft CUP prior to recording.

The Air District's rule book can be accessed via the internet at http://www.co.imperial.ca.us/AirPollution. Click on "Rules & Regulations" under "Resources" on the left side of the page. Should you have questions, please call our office at (442) 265-1800.

AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER

EEC ORIGINAL PKG

Sincerely,

Curtis Blondell

Curtis Blondell
APC Environmental Coordinator

Reviewed by:
Monica Soucier
APC Division Manager

EEC ORIGINAL PKG

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January 23, 2020

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JAN 23 2020

IMPERIAL COUNTY
PLANNING & DEVELOPMENT SERVICES

Ms. Mariela Moran
Planner II
Planning & Development Services Department
County of Imperial
801 Main Street
El Centro, CA 92243

SUBJECT: Heber 1 Geothermal Expansion Project CUP Application No. 19-0028

Dear Ms. Moran:

On January 8, 2020, the Imperial Irrigation District received from the Imperial County Planning & Development Services Dept. a request for agency comments on Conditional Use Permit application no. 19-0028. The applicant, Ormat Nevada, Inc.; proposes to amend CUP no. 15-0013 to expand the Heber 1 geothermal facility located at 895 Pitzer Road, Heber, California, by taking the existing dual-flash steam turbine generator out of service and installing two (2) new Ormat Energy Converter geothermal power generation units as well as storage tanks and an evacuation skid/vapor recovery maintenance unit. The application also proposes to extend the term of the CUP to 30 years, from 2020 to 2050.

The Imperial Irrigation District has reviewed the information and has the following comments:

1. For electrical service for the project, the applicant should be advised to contact Joel Lopez, IID Customer Project Development Planner, at (760) 482-3444 or e-mail Mr. Lopez at jflopez@iid.com to initiate the customer service application process. In addition to submitting a formal application (available for download at the IID website http://www.iid.com/home/showdocument?id=12923), the applicant will be required to submit a complete set of approved plans (including CAD files), project schedule, estimated in-service date, one-line diagram of facility, electrical loads, panel size, voltage, and the applicable fees, permits, easements and environmental compliance documentation pertaining to the provision of electrical service to the project. The applicant shall be responsible for all costs and mitigation measures related to providing electrical service to the project.

2. IID facilities that may be impacted include the Daffodil Canal (the project site is located adjacent to and west of the Daffodil Canal), Daffodil Lateral 1 and Dogwood Canal. However, it appears that the expansion project will not affect IID's canals or laterals. If this should occur, the applicant will be required to contact IID Water Department Engineering Services section prior to final project design. IID Water Dept. ESS can be contacted at (760) 339-9265 for further information.

3. The applicant may not use IID's canal or drain banks to access the project site. Any abandonment of easements or facilities will be approved by IID based on systems (irrigation, drainage, power, etc.) needs.

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4. Any construction or operation on IID property or within its existing and proposed right of way or easements including but not limited to: surface improvements such as proposed new streets, driveways, parking lots, landscape; and all water, sewer, storm water, or any other above ground or underground utilities; will require an encroachment permit, or encroachment agreement (depending on the circumstances). A copy of the IID encroachment permit application and instructions are available at the district website http://www.iid.com/departments/real-estate. The IID Real Estate Section should be contacted at (760) 339-9239 for additional information regarding encroachment permits or agreements.

5. In addition to IID's recorded easements, IID claims, at a minimum, a prescriptive right of way to the toe of slope of all existing canals and drains. Where space is limited and depending upon the specifics of adjacent modifications, the IID may claim additional secondary easements/prescriptive rights of ways to ensure operation and maintenance of IID's facilities can be maintained and are not impacted and if impacted mitigated. Thus, IID should be consulted prior to the installation of any facilities adjacent to IID's facilities. Certain conditions may be placed on adjacent facilities to mitigate or avoid impacts to IID's facilities.

6. Any new, relocated, modified or reconstructed IID facilities required for and by the project (which can include but is not limited to electrical utility substations, electrical transmission and distribution lines, etc.) need to be included as part of the project's CEQA and/or NEPA documentation, environmental impact analysis and mitigation. Failure to do so will result in postponement of any construction and/or modification of IID facilities until such time as the environmental documentation is amended and environmental impacts are fully analyzed. **Any and all mitigation necessary as a result of the construction, relocation and/or upgrade of IID facilities is the responsibility of the project proponent.**

Should you have any questions, please do not hesitate to contact me at 760-482-3609 or at dvargas@iid.com. Thank you for the opportunity to comment on this matter.

Respectfully,

Donald Vargas
Compliance Administrator II

Enrique B. Martinez – General Manager
Mike Pacheco – Manager, Water Dept.
Marilyn Del Bosque Gilbert – Manager, Energy Dept.
Jamie Asbury – Deputy Manager, Energy Dept., Operations
Enrique De Leon – Asst. Mgr., Energy Dept., Distr., Planning, Eng & Customer Service
Vance Taylor – Asst General Counsel
Robert Laurie – Outside Counsel
Michael P. Kemp – Superintendent, Regulatory & Environmental Compliance
Laura Cervantes. – Supervisor, Real Estate
Jessica Humes – Environmental Project Mgr. Sr., Water Dept.

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DEPARTMENT OF TRANSPORTATION
DISTRICT 11
4050 TAYLOR STREET, MS-240
SAN DIEGO, CA 92110
PHONE (619) 688-3137
FAX (619) 688-4299
TTY 711
www.dot.ca.gov

Making Conservation a California Way of Life.

January 28, 2020

11-IMP-111
PM 3.27
Heber 1 Project – Ormat Nevada, Inc.
CUP # 19-0028

Ms. Mariela Moran, Planner II
County of Imperial Planning and Development Services
801 Main Street
El Centro, CA 92243

Dear Ms. Moran:

Thank you for including the California Department of Transportation (Caltrans) in the Conditional Use Permit (CUP) review process for the Heber 1 Project – Ormat Nevada, Inc. project located near State Route 111 and State Route 86 (SR-111, SR-86). The mission of Caltrans is to provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability. The Local Development-Intergovernmental Review (LD-IGR) Program reviews land use projects and plans to ensure consistency with our mission and state planning priorities.

Caltrans has the following comments:

Traffic Control Plan/Hauling

The California Department of Transportation (Caltrans) has discretionary authority with respect to highways under its jurisdiction and may, upon application and if good cause appears, issue a special permit to operate or move a vehicle or combination of vehicles or special mobile equipment of a size or weight of vehicle or load exceeding the maximum limitations specified in the California Vehicle Code. The Caltrans Transportation Permits Issuance Branch is responsible for the issuance of these special transportation permits for oversize/overweight vehicles on the State Highway System. Additional information is provided online at:
http://www.dot.ca.gov/trafficops/permits/index.html

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A Traffic Control Plan is to be submitted to Caltrans District 11, including the interchange at SR-111/ E. Jasper Road, at least 30 days prior to the start of any construction. Traffic shall not be unreasonably delayed. The plan shall also outline suggested detours to use during closures, including routes and signage.

Potential impacts to the highway facilities (SR-111 and SR-86) and traveling public from the detour, demolition and other construction activities should be discussed and addressed before work begins.

If you have any questions, please contact Mark McCumsey, of the Caltrans Development Review Branch, at (619) 688-6802 or by e-mail sent to mark.mccumsey@dot.ca.gov.

Sincerely,

MAURICE EATON, Branch Chief
Local Development and Intergovernmental Review

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Mariela Moran

From: Mccumsey, Mark@DOT <mark.mccumsey@dot.ca.gov>
Sent: Thursday, January 30, 2020 4:08 PM
To: Mariela Moran
Subject: FW: Caltrans Letter - Heber 1 Project - Ormat Nevada, Inc. - CUP# 19-0028
Attachments: CT_Ltr_Heber 1 Project -Ormat Nevada 1-28-20.pdf

CAUTION: This email originated outside our organization; please use caution.

Mariela,
I wanted to add one more thing to the letter, but will let you know in my email that if the turbine engine that is transported is oversized, larger than the lane width on the highway, per se, then there may need to be an Caltrans encroachment permit required. Since I did not pick up on that in the project description of the size of the turbine engine. That permit would need to be filed locally at the Caltrans District 11 office in San Diego. The transportation permit to haul heavy weight/loads can be obtained in Sacramento over the phone at our HQ office.

Let me know if you have any questions,

Thanks,

Mark McCumsey
Associate Transportation Planner
CA Dept. of Transportation, District 11 Planning
4050 Taylor Street MS-240
San Diego, CA 92110
Phone # (619) 688-6802
Cell # (805) 264-7574

From: Mccumsey, Mark@DOT
Sent: Wednesday, January 29, 2020 8:29 AM
To: Mariela Moran <MarielaMoran@co.imperial.ca.us>
Cc: Eaton, Maurice A@DOT <maurice.eaton@dot.ca.gov>
Subject: Caltrans Letter - Heber 1 Project - Ormat Nevada, Inc. - CUP# 19-0028

Hi Mariela,
Please find the attached letter for the above captioned project.

Let me know if you have any questions,

Thanks,

Mark McCumsey
Associate Transportation Planner
CA Dept. of Transportation, District 11 Planning

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4050 Taylor Street MS-240
San Diego, CA 92110
Phone # (619) 688-6802
Cell # (805) 264-7574

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CUP APPLICATION AND SUPPORTING DOCUMENTATION

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CONDITIONAL USE PERMIT

I.C. PLANNING & DEVELOPMENT SERVICES DEPT.
801 Main Street, El Centro, CA 92243 (760) 482-4236

- APPLICANT MUST COMPLETE ALL NUMBERED (black) SPACES – Please type or print -

1. PROPERTY OWNER'S NAME HEBER FIELD COMPANY		EMAIL ADDRESS MWendt@ormat.com	
2. MAILING ADDRESS (Street / P O Box, City, State) 6140 PLUMAS STREET, RENO NV		ZIP CODE 89519	PHONE NUMBER 775-356-9029
3. APPLICANT'S NAME HEBER GEOTHERMAL COMPANY / ORMAT NEVADA, INC.		EMAIL ADDRESS MWendt@ormat.com	
4. MAILING ADDRESS (Street / P O Box, City, State) 6140 PLUMAS STREET, RENO, NV		ZIP CODE 89519	PHONE NUMBER 775-356-9029
4. ENGINEER'S NAME SHLOMI HUBERMAN	CA. LICENSE NO.	EMAIL ADDRESS Shuberman@ormat.com	
5. MAILING ADDRESS (Street / P O Box, City, State) 6140 PLUMAS STREET, RENO, NV		ZIP CODE 89519	PHONE NUMBER 775-356-9029

6. ASSESSOR'S PARCEL NO. 054-250-035, 054-250-036	SIZE OF PROPERTY (in acres or square foot) 27 acres	ZONING (existing) A-2-G/SPA
7. PROPERTY (site) ADDRESS 875 PITZER ROAD		
8. GENERAL LOCATION (i.e. city, town, cross street) HEBER, CA		
9. LEGAL DESCRIPTION Track 44, Township 16 South, Range 14 East, SBBM		

PLEASE PROVIDE CLEAR & CONCISE INFORMATION (ATTACH SEPARATE SHEET IF NEEDED)

10. DESCRIBE PROPOSED USE OF PROPERTY (list and describe in detail)	Facility refurbishment, equipment installation, removal of existing facilities. See attached.
11. DESCRIBE CURRENT USE OF PROPERTY	MAJOR GEOTHERMAL POWER PLANT
12. DESCRIBE PROPOSED SEWER SYSTEM	No additional sewer service proposed
13. DESCRIBE PROPOSED WATER SYSTEM	No additional water system, same IID intake.
14. DESCRIBE PROPOSED FIRE PROTECTION SYSTEM	Expansion of existing fire system.
15. IS PROPOSED USE A BUSINESS? ☒ Yes ☐ No	IF YES, HOW MANY EMPLOYEES WILL BE AT THIS SITE? 30, 10-15 more during construction

I / WE THE LEGAL OWNER (S) OF THE ABOVE PROPERTY CERTIFY THAT THE INFORMATION SHOWN OR STATED HEREIN IS TRUE AND CORRECT.

Connie Stechman — 3-2-2020
Print Name — Date

Connie Stechman
Signature

Print Name — Date

Signature

REQUIRED SUPPORT DOCUMENTS

A. SITE PLAN
B. FEE
C. OTHER
D. OTHER

APPLICATION RECEIVED BY:	MM' Mail	DATE	3/6/2020	REVIEW / APPROVAL BY OTHER DEPT'S required.	
APPLICATION DEEMED COMPLETE BY:		DATE		☐ P. W.	
APPLICATION REJECTED BY:		DATE		☐ E. H. S.	
TENTATIVE HEARING BY:		DATE		☐ A. P. C. D.	
FINAL ACTION: ☐ APPROVED ☐ DENIED		DATE		☐ O. E. S.	

CUP # 19-0028

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HEBER 1 REPOWER PROJECT

APPLICATION TO AMEND CONDITIONAL USE PERMIT NO. 15-0013

IMPERIAL COUNTY

Prepared for:

Ormat Nevada Inc.
6140 Plumas St.
Reno, NV 89519

Prepared by:

CHAMBERS GROUP, INC.
9620 Chesapeake Drive, Suite 202
San Diego, California 92123

December 2020

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** Not included, to be prepared by ICPDS staff*

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****Revised Site Plan per email dated 12/21/2020 from Chambers Group***

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SECTION 1.0 – INTRODUCTION

Heber Field Company, a subsidiary of ORMAT Nevada, Inc. (ORMAT), owns and operates the Heber 1 dual-flash/Goulds 1 & OEC-14 binary geothermal electric generation facility (Heber 1) southeast of Heber in Imperial County, CA. ORMAT is a leading geothermal company and the only vertically integrated company engaged in geothermal and recovered energy generation (REG), with the objective of becoming a leading global provider of renewable energy. ORMAT owns, operates, designs, manufactures and sells geothermal facilities based on the ORMAT Energy Converter (OEC) - a power generation unit that converts low-, medium- and high-temperature heat into electricity.

Heber Field Company and ORMAT propose a Repower Project which will take the existing dual-flash steam turbine generator out of service and install two new OEC geothermal power generation units at the Heber 1. In addition, OEC-11 and OEC-13 will be reconfigured into a combined two-level unit, OEC-11 ITLU. The steam turbine generator has become less effective as the temperature of the geothermal resource has decreased over time. The new and updated units operate by a different process and will perform better than the steam turbine generator at the current lower temperature of the geothermal fluid, improving efficiency of the operations. Based on ORMAT records, the 2015 amendment to CUP No. 04-0024, which incorporated OEC-14, added 16 gross MW to the existing 62.5 gross MW, bringing the facility net output up to 52MW. The Heber Repower Project is therefore not proposing to increase the authorized nameplate net or gross outputs, which are 52MW and 78.2MW respectively, and only proposing to bring net and gross generation up to existing authorized levels. Additional new equipment including storage tanks and an evacuation skid/vapor recovery maintenance unit (VRMU) will also be added to the facility.

This application also proposes to extend the permitted life of the Heber 1 to 30 years (2020-2050). The proposed facility upgrades would allow the Heber 1 complex to run more efficiently and restore output to the net generation capacity without expanding the existing facility beyond the current footprint, and produce clean renewable energy in the Imperial Valley for the next three decades.

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SECTION 2.0 – PROJECT DESCRIPTION

Ormat Nevada Inc. (Ormat) is a leading geothermal company and the only vertically integrated company engaged in geothermal and recovered energy generation (REG), with the objective of becoming a leading global provider of renewable energy. Ormat owns, operates, designs, manufactures and sells geothermal facilities based on the Ormat Energy Converter (OEC) - a power generation unit that converts low-, medium- and high-temperature heat into electricity.

Ormat proposes to upgrade the existing Heber 1 geothermal facility, which is owned by the subsidiary Heber Field Company, by shutting down the dual-flash steam turbine generator, installing two new OECs (OEC 1 and OEC 2), and reconfiguring two of the existing OECs (OEC 11 and OEC 13). These updates are referred to here onward as the Proposed Project. OEC 1 and 2 combined would function as an Ormat Integrated Three-Level Unit (I3LU) and will use air cooling rather than water cooling for the motive fluid . OEC 11 and OEC 13 combined would function as an Integrated Two-Level Unit (ITLU) and will use the existing cooling tower. The proposed new setup is better suited to the current and expected future conditions of the geothermal resource than the steam turbine generator, improving efficiency of the operations and bringing net and gross generation up to existing authorized levels. Based on Ormat records, the 2015 amendment to CUP No. 04-0024, which incorporated OEC-14, added 16 gross MW to the existing 62.5 gross MW, bringing the facility net output up to 52MW. Therefore, the Proposed Project would not increase the authorized nameplate gross or net output, which are 52MW and 78.2MW respectively. The following sections describe the location and details associated with the upgrade of the Proposed Project site.

A. Project Location:

The Proposed Project site is located in Heber, CA, Imperial County. The Proposed Project would occur entirely within the existing Heber 1 facility, owner and operated by Ormat and located at 895 Pitzer Road, Heber, CA (Figure 1). The Proposed Project site is located within Assessor's Parcel Numbers (APN) 054-250-035 and 054-250-036. The Proposed Project site is zoned General Agriculture within the Heber Specific Plan Area (A-2-G-SPA). The Proposed Project site is generally bound by APNs 054-250-014 to the north, Pitzer Road to the east, East Jasper Road to the south, and a Union Pacific right-of-way and APN 054-250-027 and 054-250-026 to the west; the surrounding land uses and zoning are General Agriculture and Heavy Agriculture and currently contain active agricultural operations.

B. Project Summary:

The Proposed Project includes the following improvements and additions to the existing Heber 1 facility include (Figure 2):

- Replacing the Steam Turbine and Bottoming units with Ormat I3LU and ITLU
    - The I3LU and ITLU would generate 51.3 megawatts (MW) gross and 36.2 MW net
- The I3LU configuration would include new air cooled OECs
    - New air cooled OECs will be OEC 1 and OEC 2
        - New OECs will require installation of two additional isopentane storage tanks (10,000 gallons each) on-site
        - New VRMU

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- OEC 11 and OEC 13 will be converted to ITLU
  - The existing cooling tower and VRMU will be used for OEC 11 and OEC 13
- Additional modification to OEC 11 and OEC 13 includes
  - Some of the brine heat exchangers will be replaced
  - Replace the existing generator and one Turbine
  - Replace a portion of the piping system and pumps
  - No modifications are planned to the existing cooling water system (tower, pumps, condensers, piping etc.) and VRMU
- The Proposed Project does not include alterations to existing units OEC 14 and OEC 12
- Existing substation will be used without changes

Ormat Energy Converter 1

Ormat Energy Converter 1 (OEC 1) is a two-turbine combined cycle binary unit that operates on a subcritical Rankine cycle with isopentane as the motive fluid for the system. OEC 1 also includes a generator, vaporizer, air cooled condensers, and preheaters and recuperators. OEC 1 will be served by a VRMU for purging vapor prior to maintenance. The design capacity for OEC 1 is 19.85 MW.

Ormat Energy Convertor 2

Ormat Energy Converter 2 (OEC 2) is a two-turbine combined cycle binary unit that operates on a subcritical Rankine cycle with isopentane as the motive fluid for the system. OEC 2 also includes also includes a generator, vaporizer, air cooled condensers, and preheaters. OEC 2 will be served by a VRMU for purging vapor prior to maintenance. The design capacity for OEC 2 is 17.25 MW.

Vapor Recovery Maintenance Unit (VRMU)

The VRMU is composed a liquid motive fluid removal pump, a motive fluid knockout drum, a vacuum pump, motive fluid vapor condenser, motive fluid accumulator tank, a pressure-controlled vent valve, and an activated carbon adsorption unit.

On-site Retention Basins

There are currently three retention basins onsite and are in the process of being filled in coordination with the Regional Water Quality Control Board. For the purposes of this analysis, the retention basins will be considered filled, developed land for construction.

Water Usage

Per the original CUP (15-0013), the permittee may use up to a total of 1,800 acre feet of irrigation water per year for 30 years from Imperial Irrigation District (IID). On November 18, 2019, the IID issued an Amendment No. 1 to the Amended and Restated Water Supply Agreement to supply an additional 500 acre feet of water per year in addition to the 1,800 acre feet that was in the agreement, for a total of 2,300 acre feet per year. The purpose of this increase is the original operational process utilized flashes of geothermal brine to make steam, which made water condensate that was then used in the wet cooling tower. Changes to these existing facilities will no longer generate the extra water needed for the cooling

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towers. In 1985, the IID supplied 5,000 acre feet per year, so over time with equipment modifications and changes in the geothermal resource, water consumption has fluctuated. There will be no change to the existing water intake or supply system to accommodate this change.

Construction Schedule

Construction of the Proposed Project would start June 2020 and would take approximately 6 months to construct. Construction of OEC 1 and OEC 2 would be initial phase of construction. Approximately two months prior to the end of the construction timeline, construction on OEC 11 and OEC 13 would begin.

Construction Equipment

It is assumed that construction equipment would include a crane, boom truck, fork lift, man lift, haul trucks and hand tools. Transporting the retired steam turbine generator from the Project site may require overweight or oversized vehicles and loads to travel on surrounding roadways. Ormat will determine with its contractors the need to submit an application for a special permit to operate, through the California Department of Transportation (Caltrans), well in advance of planned equipment mobilization and hauling of materials to the Project site. Ormat will also contract a traffic engineer to develop a Traffic Control Plan for the Proposed Project and will submit the plan at least 30 days prior to construction, in addition to coordinating with Caltrans.

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Figure 1: Project Location Map

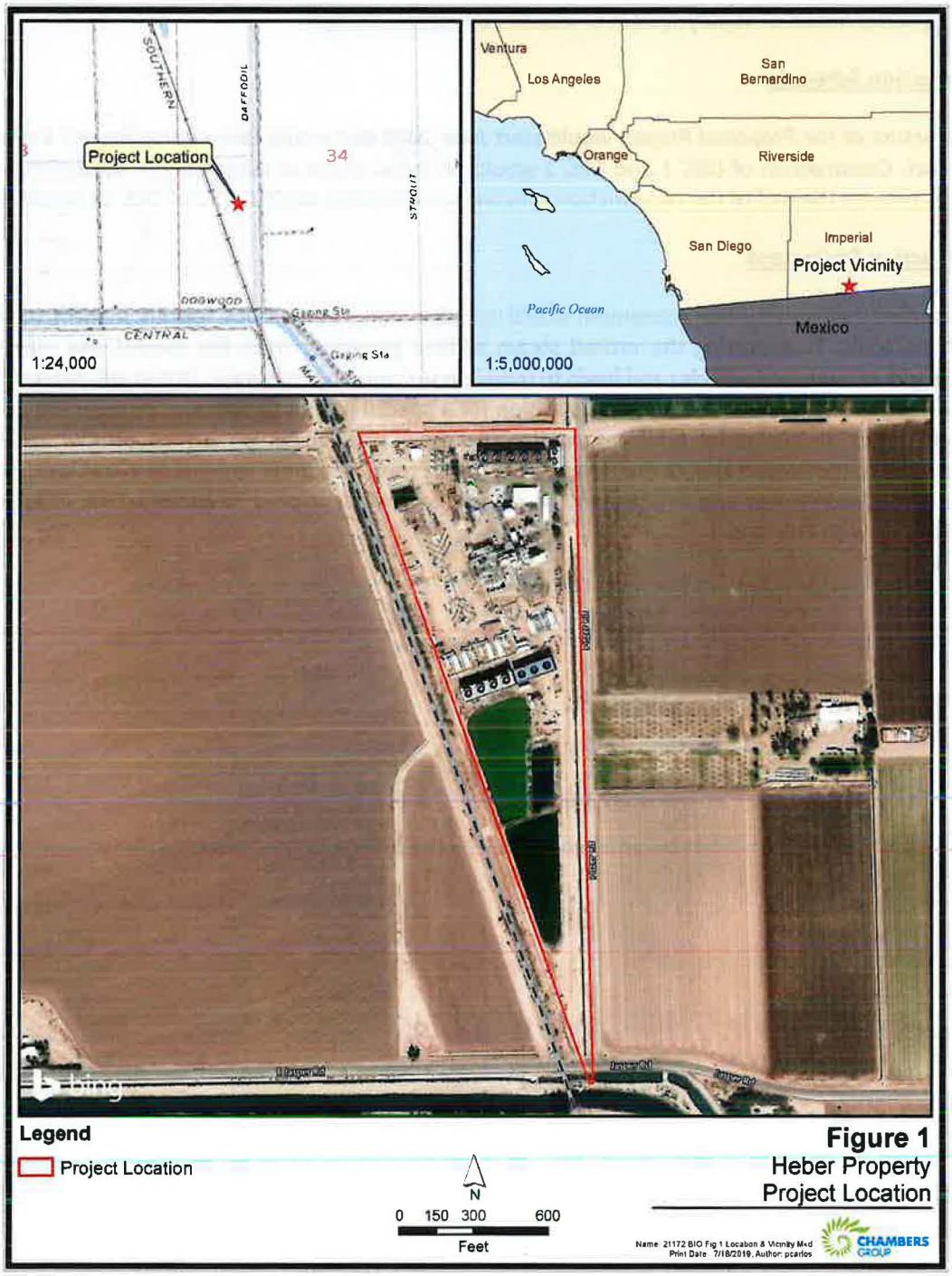

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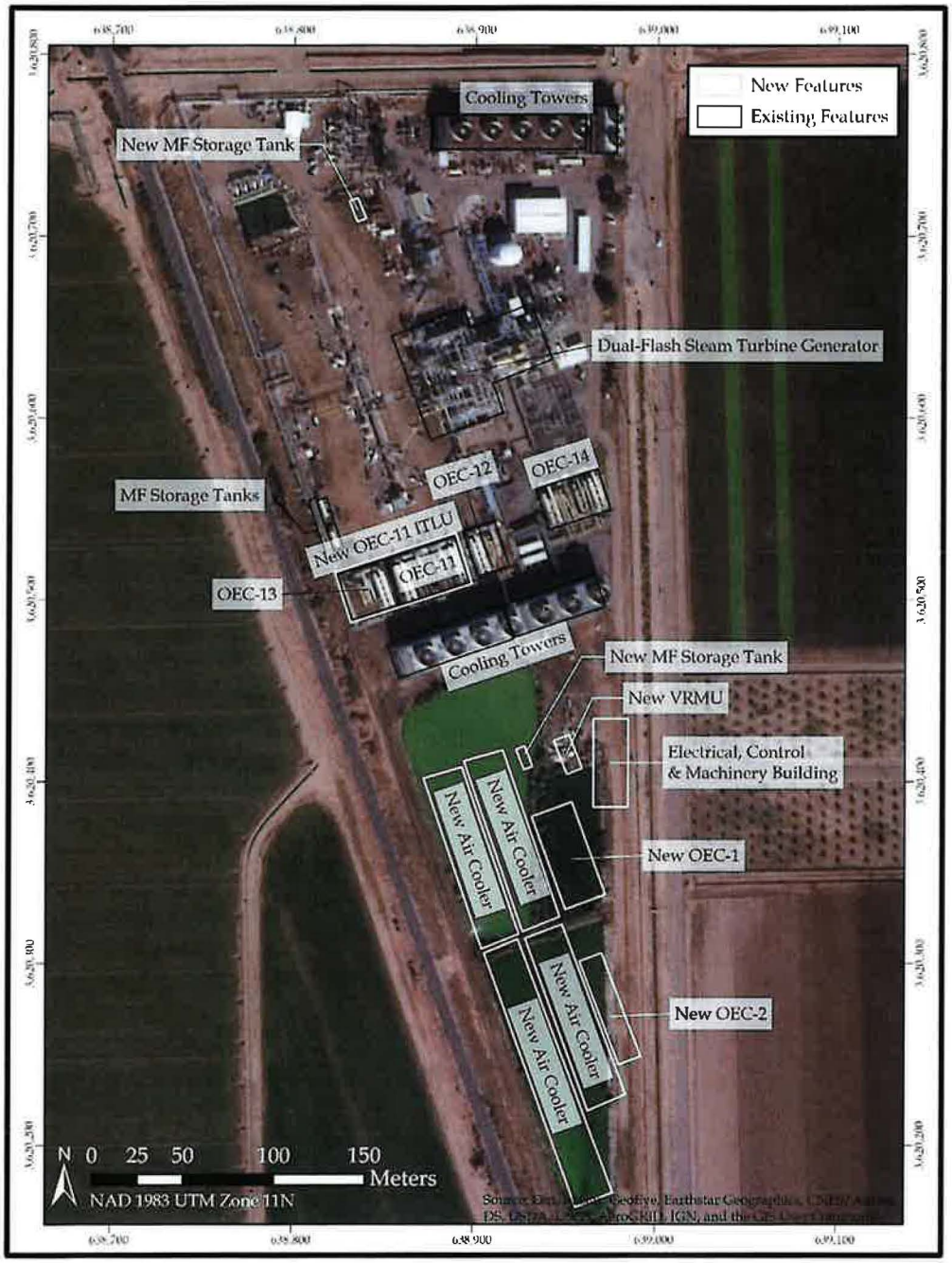
Figure 2: Project Site Plan



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APPENDIX A – SITE PHOTOGRAPHS

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CHAMBERS GROUP

Note to the Reader

On December 17th, 2019 ORMAT Nevada Inc. (ORMAT) submitted an application to the County of Imperial Planning & Development Services Department to amend Conditional Use Permit (CUP) No. 15-0013 for the Heber 1 geothermal facility in Imperial County, CA. The amendment proposed a Repower Project which would take the existing dual-flash steam turbine generator out of service and install two new OEC geothermal power generation units to increase performance of the facility (Project). The Project also included installation of new equipment including six 10,000-gallon isopentane storage tanks and an evacuation skid/vapor recovery maintenance unit. Based on close coordination with the County of Imperial ORMAT has decided to reduce the number of 10,000 gallon isopentane tanks on the Heber 1 site from six tanks to two tanks. While these revisions are not reflected in the text of the following technical report, it does not materially change any of the impact assessments or technical conclusions within the report.

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APPENDIX A – SITE PHOTOGRAPHS (July 2019)



Photo 1. Overview of a typical access road along the western edge of the Study Area. View south.

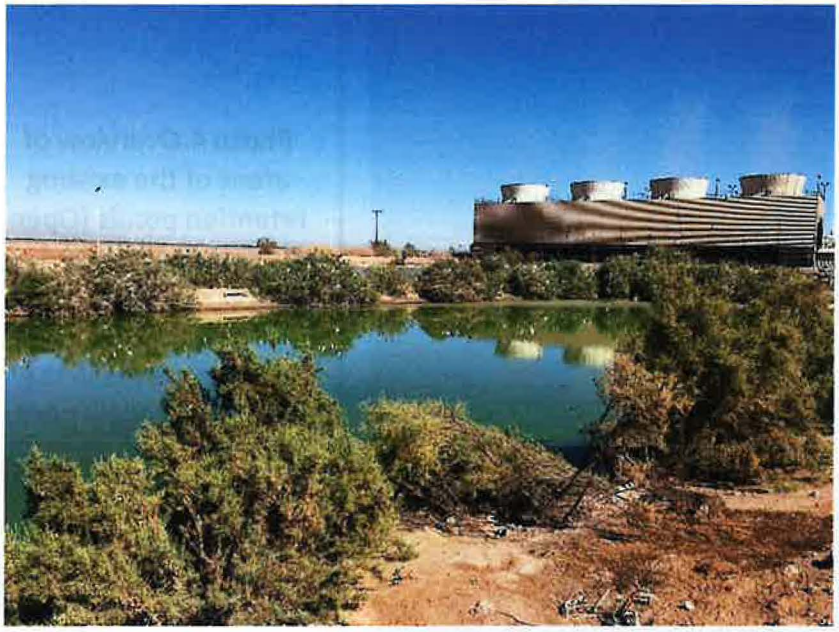

Photo 2. Overview of the Tamarisk Thickets and associated egret rookery. View northwest.

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Photo 3. Overview of existing Retention Ponds and the surrounding Disturbed habitat. View southwest.



Photo 4. Overview of areas of the existing retention ponds (Open Water), Disturbed habitat surrounding the ponds, and existing cooling towers in the background. View north.

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Photo 5. Overview from the eastern edge of the Study Area. View northeast.



Photo 6. Typical overview of Developed areas. View north.

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Photo 7. Typical overview of Landscape/Ornamental areas. View southeast.



Photo 8. Detail overview of Developed areas, Pavement, Bare Ground, and Disturbed habitats. View south.

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Legend

Project Location

Directional Photo Location

Photo Locations

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Name: 21172 PLAN Photo Locations.Mxd
\Print Date: 12/3/2019, Author: pcarlos

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APPENDIX B – BIOLOGICAL TECHNICAL REPORT

CHAMBERS GROUP

Note to the Reader

On December 17th, 2019 ORMAT Nevada Inc. (ORMAT) submitted an application to the County of Imperial Planning & Development Services Department to amend Conditional Use Permit (CUP) No. 15-0013 for the Heber 1 geothermal facility in Imperial County, CA. The amendment proposed a Repower Project which would take the existing dual-flash steam turbine generator out of service and install two new OEC geothermal power generation units to increase performance of the facility (Project). The Project also included installation of new equipment including six 10,000-gallon isopentane storage tanks and an evacuation skid/vapor recovery maintenance unit. Based on close coordination with the County of Imperial ORMAT has decided to reduce the number of 10,000 gallon isopentane tanks on the Heber 1 site from six tanks to two tanks. While these revisions are not reflected in the text of the following technical report, it does not materially change any of the impact assessments or technical conclusions within the report.

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BIOLOGICAL TECHNICAL REPORT
FOR THE HEBER 1 REPOWER PROJECT
IMPERIAL COUNTY, CALIFORNIA

Prepared for:

Ormat Nevada Inc

6140 Plumas St.
Reno, NV 89519

Prepared by:

CHAMBERS GROUP, INC.
242 N. 8th Street
El Centro, California 92243
(760) 460-4063

October 2019

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GLOSSARY OF TERMS AND ACRONYMS

California Rare Plant Rank (CRPR)

List 1A	=	Plants presumed extinct in California.
List 1B	=	Plants rare and endangered in California and throughout their range.
List 2	=	Plants rare, threatened, or endangered in California but more common elsewhere in their range.
List 3	=	Plants about which we need more information; a review list.
List 4	=	Plants of limited distribution; a watch list.

CRPR Extensions

0.1	=	Seriously endangered in California (greater than 80 percent of occurrences threatened/high degree and immediacy of threat).
0.2	=	Fairly endangered in California (20-80 percent occurrences threatened).
0.3	=	Not very endangered in California (less than 20 percent of occurrences threatened).

Federal

FE	=	Federally listed; Endangered
FT	=	Federally listed; Threatened
BCC	=	Birds of Conservation Concern

State

ST	=	State listed; Threatened
SE	=	State listed; Endangered
SSC	=	State Species of Special Concern

Local

IID	=	Imperial Irrigation District

General

°F	Degrees Fahrenheit
BCC	Birds of Conservation Concern
BMPs	Best Management Practices
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Register
Chambers Group	Chambers Group, Inc.
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CNPSEI	California Native Plant Society Electronic Inventory

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CRPR	California Rare Plant Rank
CWA	Clean Water Act
DRECP	Desert Renewable Energy Conservation Plan
FESA	Federal Endangered Species Act
FT.	Feet
GCP	General Conservation Plan
GIS	Geographic Information System
HCP	Habitat Conservation Plan
I3LU	Integrated Three Level Unit
ITLU	Integrated Two Level Unit
ITP	Incidental Take Permit
MBTA	Migratory Bird Treaty Act
MW	Megawatt
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
OEC	ORMAT Energy Converter
PFO	Potential for Occurrence
ROW	Right-of-Way
RWQCB	Regional Water Quality Control Board
SQ. FT.	Square Feet
SWRCB	State Water Resources Control Board
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VRMU	Vapor Recovery Maintenance Unit

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EXECUTIVE SUMMARY

This Biological Technical Report (BTR) has been prepared for the County of Imperial, as the lead agency under the California Environmental Quality Act (CEQA), for the Heber 1 Repower Project (Proposed Project). The Proposed Project is located within the Imperial Irrigation District's (IID) Habitat Conservation Plan (HCP); and comprises an existing geothermal power plant. The purpose of this report is to document the biological resources identified as present or potentially present on the Proposed Project; identify potential biological resource impacts resulting from the Proposed Project; and recommend measures to avoid, minimize, and/or mitigate significant impacts consistent with federal, state and local rules and regulations under CEQA and IID's HCP. This BTR incorporates the results of a biological reconnaissance-level survey.

Heber Geothermal Company and ORMAT Nevada, Inc. (ORMAT) propose a Repower Project which will take the existing dual-flash steam turbine generator out of service and install two new two-level geothermal power generation units at the Heber 1. In addition, OEC-11 and OEC-13 will be reconfigured into a combined two-level unit, OEC-11 ITLU. The steam turbine generator has become less effective as the temperature of the geothermal resource has decreased over time. The new and updated units operate by a different process and will perform better than the steam turbine generator at the current lower temperature of the geothermal fluid, improving efficiency of the operations. Based on ORMAT records, the 2015 amendment to CUP No. 04-0024, which incorporated OEC-14, added 16 gross MW to the existing 62.5 gross MW, bringing the facility net output up to 52MW. The Heber Repower Project is therefore not proposing to increase the authorized nameplate net or gross outputs, which are 52MW and 78.2MW respectively, and only proposing to bring net and gross generation up to existing authorized levels. Additional new equipment including storage tanks and an evacuation skid/vapor recovery maintenance unit (VRMU) will also be added to the facility. Each of these elements associated with the Proposed Project are explained in further detail within Section 1.3 of this report. The biological reconnaissance-level survey was conducted over the parcel containing the Proposed Project features (Survey Area). Impacts to habitat were calculated for all Proposed Project features and anticipated work areas combined (Project Area).

The existing geothermal facility is developed with existing buildings, and infrastructure. The majority of the proposed site development evaluated within this report will occur to the southern portion of the existing Heber 1 facility. The Survey Area is immediately surrounded by agricultural operations and a Union Pacific Railroad track. The Main Canal and the Daffodil Canal are located to the south and east of the Survey Area, respectively; both are cement-lined canals. A few isolated residences with associated landscape/ornamental vegetation occur primarily south and west of the existing site.

A total of four special status plant species were evaluated for their potential for occurrence (PFO) within the Survey Area. Based on the biological reconnaissance-level survey and analysis conducted for this report, all four special status plant species are considered absent within the Survey Area due to lack of suitable habitat or the species not being observed. Therefore, no impacts to special status plants are would result from the Proposed Project.

A total of nine sensitive wildlife species were evaluated for their PFO within the Survey Area. Based on the biological reconnaissance-level survey and database analysis, two wildlife species, burrowing owl (*Athene cunicularia*) and western mastiff bat (*Eumops perotis*) have a moderate PFO.

No jurisdictional features such as drainages or swales were observed within the Proposed Project area. Two irrigation canals, associated with the IID, are located along the eastern and southern edge of the

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Survey Area. Three retention ponds are located within the Proposed Project area; however, these are closed, man-made systems and for the purposes of this report are considered Developed areas. Limited riparian vegetation is located immediately surrounding the three ponds and is solely comprised of tamarisk and is maintained (cut down) yearly.

Construction of the Proposed Project would result in approximately 7.67 acres (315,373 square feet [sq. ft.]) of surface disturbance, including 1.64 acres of bare ground, 1.02 acres of sparse disturbed habitat and 5.01 acres of developed land. At the time of this report, distinction between temporary and permanent impacts was not known; however, majority of the impacts are anticipated to be temporary in nature. No sensitive or native habitat will be impacted by the Proposed Project.

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SECTION 1.0 – INTRODUCTION

1.1 SITE LOCATION AND DESCRIPTION

The Proposed Project site is located a half-mile south of the unincorporated town of Heber in Imperial County, California. The Proposed Project is located within the U.S. Geological Survey (USGS) *Heber*, California 7.5-minute topographic quadrangle. The Proposed Project site is bordered by Pitzer Road and Daffodil Canal to the east, a Union Pacific Railroad track to the southwest, and a dirt road to the north. The site is further surrounded by agricultural fields and canals associated with the Salton Sink. The City of Calexico is located two miles southeast and the New River is located two miles southwest. The elevation at the Proposed Project site ranges from approximately -7 feet to 2 feet above mean sea level (amsl). Maps of the Proposed Project Location and Proposed Project Vicinity are provided in Appendix A, Figure 1.

The Proposed Project would occur entirely within the existing Heber 1 facility (Survey Area), owned and operated by ORMAT and located at 895 Pitzer Road, Heber, CA. The Proposed Project site is located within Assessor's Parcel Numbers (APN) 054-250-035 and 054-250-036. The Proposed Project site is zoned General Agriculture within the Heber Specific Plan Area (A-2-G-SPA). The Proposed Project site is generally bound by agricultural operations to the north, Pitzer Road to the east, East Jasper Road to the south, and a Union Pacific Railroad right-of-way (ROW) to the west; the surrounding land uses and zoning are General Agriculture and Heavy Agriculture and currently contain active agricultural operations consisting of cattle feed lots and hay grasses.

1.2 PROJECT DESCRIPTION

The Proposed Project includes improvements and additions to the existing Heber 1 facility. The Proposed Project seeks to install two new ORMAT Energy Converters (OEC) designated OEC 1 and OEC 2, upgrade OEC 11 and OEC 13, and pave/replace existing access roads.

OEC 12 and OEC 14, the existing Vapor Recovery Maintenance Unit (VRMU); the cooling water system (tower, pumps, condensers, piping etc.); and the existing substation will not be modified. The Proposed Project will replace the existing Steam Turbine and Bottoming units with ORMAT Integrated three-level unit (I3LU) and Integrated two-level unit (ITLU). These units will result in 51.3 megawatts (MW) gross generation and 36.2 MW net generation capacity.

For further details related to Project features, please refer to the Project Description (Section 2) in the CUP Amendment Application. Construction-related biological impacts associated with each of these Proposed Project features are summarized and detailed in Section 5 of this report.

1.3 CONSTRUCTION SCHEDULE

Construction of the Proposed Project would start August 2020 and would take approximately 10 months to construct. Construction of OEC 1 and OEC 2 would be initial phase of construction. Approximately two months prior to the end of the construction timeline, construction on OEC 11 and OEC 13 would begin. It is anticipated all construction activities would be complete in 10 months.

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1.3.1 Construction Equipment

It is assumed that construction equipment would include a crane, boom truck, cement truck, fork lift, man lift, haul trucks and hand tools. Additional construction equipment may be required based on Proposed Project needs.

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SECTION 2.0 – APPLICABLE REGULATIONS

2.1 FEDERAL

The following are federal policies that apply to the Proposed Project.

2.1.1 Clean Water Act

The purpose of the Clean Water Act (CWA) is to, "Restore and maintain the chemical, physical, and biological integrity of the nation's waters." Section 404 of the CWA prohibits the discharge of fill material into waters of the U.S. without a permit from the U.S. Army Corps of Engineers (USACE). The definition of waters of the U.S. includes rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas "that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 Code of Federal Register (CFR) § 328.3(b)). The goals and standards of the CWA are enforced through permit provisions. The U.S. Environmental Protection Agency also has authority over wetlands and may override a USACE permit. Agricultural water conveyance systems, which are manmade and constructed wholly in uplands, are typically only considered jurisdictional if they are Relatively Permanent Waters (RPWs). "relatively permanent waters typically flow year-round or have continuous flow at least seasonally (e.g. typically three months)" (USACE 2008). Conversely, manmade drainages constructed solely in uplands that are not RPWs are generally not Federally jurisdictional.

When a project may create impacts for wetlands, the project requires a permit or a waiver. Substantial impacts to wetlands may require an Individual Permit. Projects that only minimally affect wetlands may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required from the Regional Water Quality Control Board (RWQCB) for Section 404 permit actions. No wetlands are present within the Survey Area.

Clean Water Rule

The Clean Water Rule: Definition of Waters of the United States, published in the Federal Register on June 29, 2015 and effective August 28, 2015, was enacted to ensure that waters protected under the CWA are more precisely defined and predictably determined.

2.1.1 Federal Endangered Species Act of 1973

When a private project that has no federal funding and for which no federal action is required may affect a listed species, the private applicant may receive authorization for incidental take of species listed under the Federal Endangered Species Act (FESA). In these situations, Section 10 of the FESA provides for issuance of incidental take permits (ITPs) to private entities with the development of a habitat conservation plan (HCP). An ITP allows take of the species that is incidental to another authorized activity.

2.1.2 Migratory Bird Treaty Act, as Amended

The Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 USC 703-711), provides legal protection for almost all bird species occurring in, migrating through, or spending a portion of their life cycle in North America by restricting the killing, taking, collecting, and selling or purchasing of native bird species or their

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parts, nests, or eggs. The United States Fish and Wildlife Service (USFWS) determined it was illegal under the MBTA to directly kill or destroy an active nest (nest with eggs or nestlings) of, nearly any bird species (with the exception of non-native species through the MBTA Reform Act of 2004). Certain game bird species are allowed to be hunted for specific periods determined by federal and state governments. The intent of the MBTA is to eliminate any commercial market for migratory birds, feathers, or bird parts, especially for eagles and other birds of prey. As authorized by the MBTA, the USFWS issues permits to qualified applicants for the following types of activities:

- Falconry
- Raptor propagation
- Scientific collecting
- Special purposes, such as rehabilitation, education, migratory game bird propagation, and salvage
- Take of depredating birds, taxidermy, and waterfowl sale and disposal

The regulations governing migratory bird permits can be found in Title 50, Part 13 (General Permit Procedures) and Part 21 (Migratory Bird Permits) of the CFR.

2.2 STATE

The following are California (State) policies that apply to the Proposed Project.

2.2.1 California Endangered Species Act

The California Endangered Species Act (CESA; California Fish and Game Code Sections 2050-2116) parallels the FESA. As a responsible agency, California Department of Fish and Wildlife (CDFW) has regulatory authority over species State-listed as endangered and threatened. The State Legislature encourages cooperative and simultaneous findings between State and federal agencies. Consultation with CDFW is required for projects with the potential to affect listed or candidate species. CDFW would determine whether a reasonable alternative would be required for the conservation of the species. CESA prohibits the "take" of these species unless an ITP is granted. Under California Fish and Game Code Section 2081 (ITP), CDFW can authorize the "take" of a listed species (with exception to fully protected species) if the "take" of the listed species is incidental to carrying out an otherwise lawful project that has been approved under the California Environmental Quality Act (CEQA). Section 2080.1 allows for "take" once an applicant obtains a federal ITP which can be approved (Consistency Determination letter) within 30 days by the CDFW Director. If the federal Incidental Take Statement is determined not to be consistent with CESA, then application for a State ITP (2081) is required.

CDFW has designated certain species native to California as Species of Special Concern to "focus attention on wildlife at conservation risk by the Department, other State, Local and Federal governmental entities, regulators, land managers, planners, consulting biologists, and others; stimulate research on poorly known species; achieve conservation and recovery of wildlife before they meet CESA criteria for listing as threatened or endangered."

2.2.2 Sections 1600-1602 of the California Fish and Game Code

Pursuant to Division 2, Chapter 6, Sections 1600-1602 of the California Fish and Game Code, CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river,

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stream, or lake, which supports fish or wildlife. CDFW defines a "stream" (including creeks and rivers) as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation." CDFW's definition of "lake" includes "natural lakes or man-made reservoirs." CDFW limits of jurisdiction include the maximum extent of the uppermost bank-to-bank distance or riparian vegetation dripline. Under Section 1600 of the California Fish and Game Code, CDFW's jurisdiction includes "...bed, channel or bank of any river, stream or lake designated by the department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit..." Canals, aqueducts, irrigation ditches, and other means of water conveyance can also be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife

2.2.3 California Environmental Quality Act

The CEQA (Public Resources Code, Sections 21000-21177) requires that State and local agencies consider environmental consequences and project alternatives before a decision is made to implement a project requiring State or local government approval, financing, or participation by the State of California. In addition, CEQA requires the identification of ways to avoid or reduce environmental degradation or prevent environmental damage by requiring implementation of feasible alternatives or mitigation measures.

2.2.4 California Native Plant Protection Act

The Native Plant Protection Act (NPPA) of 1977 (California Fish and Game Code §§ 1900-1913) was created with the intent to "preserve, protect, and enhance rare and endangered plants in this State." The NPPA is administered by the CDFW. The California Fish and Game Commission has the authority to designate native plants as "endangered" or "rare" and to protect them from take. Rare plants protected by CDFW generally include species with California Rare Plant Ranking (CRPR) 1A, 1B, 2A, and 2B of the California Native Plant Society (CNPS) Inventory of Rare and Endangered Vascular Plants of California. In addition, sometimes CRPR 3 and 4 plants are considered rare if the population has local significance in the area and is impacted by a project. Section 1913(b) includes a specific provision to allow for the incidental removal of endangered or rare plant species, if not otherwise salvaged by CDFW, within a ROW to allow a public utility to fulfill its obligation to provide service to the public.

When the CESA was passed in 1984, it expanded on the original NPPA, enhanced legal protection for plants, and created the categories of "threatened" and "endangered" species to parallel the FESA. The CESA converted all rare wildlife to threatened species under the NPPA, but did not do so for rare plants, which resulted in three listing categories for plants in California: rare, threatened, and endangered. The NPPA remains part of the California Fish and Game Code, and mitigation measures for impacts to rare plants are specified in a formal agreement between the CDFW and a project proponent.

2.2.5 Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1966 (California Water Code §§ 13000-13999.10) mandates that activities that may affect waters of the State shall be regulated to attain the highest quality. The State Water Resources Control Board (SWRCB) and the local RWQCB are the relevant permitting agencies. RWQCB provides regulations for a "non-degradation policy" that are especially protective of areas with high water quality. Porter-Cologne reserves the right for the State of California to regulate

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activities that could affect the quantity and/or quality of surface and/or ground waters, including isolated wetlands, within the State. Waters of the State include isolated waters that are no longer regulated by USACE. If the project is proposed to discharge into waters of the State, a Waste Discharge Report (WDR), or a waiver to WDRs, must be filed before beginning discharge.

2.3 LOCAL

The Proposed Project is located within the geographic area covered by the Imperial Irrigation District (IID) HCP and the Desert Renewable Energy Conservation Plan (DRECP) (Appendix A, Figure 2).

2.3.1 IID HCP

The IID HCP is currently in a draft phase and aims to provide for the conservation and management of covered species, preserve aquatic and terrestrial resources, and provide for the basis to guide or mitigate development in regard to potential impacts to the environment. The plan covers approximately 500,000 acres within Imperial County and a small portion of Riverside County. The plan will cover a total of 96 species, consisting of 86 wildlife species and 10 plant species. Of these species all are previously covered under either federal- or State-based environmental regulations. The plan identifies the importance of the general area's habitats and effect on migratory bird species and details special provisions to minimize or mitigate impacts to overall nesting, burrow, and/or foraging habitat (IID 2006).

2.3.2 DRECP

The DRECP is a multi-agency plan, formed by the Renewable Energy Action Team comprised of the California Energy Commission, CDFW, USFWS, and the Bureau of Land Management, with the goal of facilitating the development and minimizing the environmental impact of the development of renewable energy resources within the desert regions of California. The plan consists of multiple components targeting varying aspects of development, including but not limited to the following: General Conservation Plan (GCP) and a Natural Community Conservation Plan (NCCP). The overall goal is to conserve biological, physical, cultural, social, and scenic resources within the plan area. As this applies to biological resources, the plan intends to achieve six primary objectives: 1) Locate renewable energy development to disturbed lands or those with low biological conflict; 2) Identify plan-wide biological goals and objectives; 3) identify Preserve design envelope for each alternative; 4) contribute to the long-term conservation and management of covered species and natural communities; 5) preserve, restore, and enhance natural communities and ecosystems; and 6) identify and incorporate climate change adaption research and management objectives and/or policies (Renewable Energy Action Team 2016).

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SECTION 3.0 – METHODOLOGY

3.1 LITERATURE REVIEW

Prior to performing the field survey, existing documentation relevant to the Proposed Project site was reviewed. The most recent records of the California Natural Diversity Database (CNDDB) managed by CDFW (CDFW 2019), the USFWS Critical Habitat Mapper (USFWS 2019), and the CNPS Electronic Inventory (CNPSEI) of Rare and Endangered Vascular Plants of California (CNPS 2019) were reviewed for the following quadrangles containing and surrounding the Proposed Project site: *Heber, Mount Signal, Seeley, El Centro, Holtville W, Holtville E, Bonds Corner,* and *Calexico*, California USGS 7.5 minute quadrangles. These databases contain records of reported occurrences of federal- or state-listed endangered or threatened species, Birds of Conservation Concern (BCC), California Species of Concern (SSC), IID-covered species (IID 2006), or otherwise sensitive species or habitats that may occur within or in the immediate vicinity of the Project site.

3.2 SOILS

Before conducting the survey, soil maps for Imperial County were referenced online (U.S. Department of Agriculture [USDA] 2019) to determine the soil types found within the Proposed Project site. Soils were determined in accordance with categories set forth by the USDA Soil Conservation Service and by referencing the USDA Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA 2019).

3.3 JURISDICTIONAL WATERS

A general assessment of jurisdictional waters regulated by the USACE, RWQCB, and CDFW was conducted for the Proposed Project area. The assessment was conducted by a desktop survey through the USGS National Hydrography Dataset for hydrological connectivity, and a site assessment to confirm the desktop survey.

3.4 BIOLOGICAL RECONNAISSANCE-LEVEL SURVEY

Chambers Group, Inc.'s (Chambers Group) biologist Clark Austin conducted the general biological reconnaissance-level survey within the Proposed Project site to document the existing biological conditions, determine the PFO of sensitive species, and identify potentially jurisdictional waters. The survey was conducted on foot throughout the Proposed Project site between 1025 and 1515 hours on July 2, 2019. Weather conditions during the survey included temperatures ranging from 90 to 95 degrees Fahrenheit (°F), 1 to 3 mile per hour winds, with zero cloud cover, and no precipitation. Photographs of the Proposed Project site were recorded to document existing conditions in July 2019 (Appendix B).

3.4.1 Vegetation

All plant species observed within the Proposed Project site were recorded. Vegetation communities within the Proposed Project site were identified and qualitatively described. Plant communities were determined in accordance with the *Manual of California Vegetation, Second Edition* (2009). Plant nomenclature follows that of *The Jepson Manual* (Baldwin et. al. 2012). A comprehensive list of the plant species observed during the survey is provided in Appendix C.

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3.4.2 Wildlife

All wildlife and wildlife signs observed and detected, including tracks, scat, carcasses, burrows, excavations, and vocalizations, were recorded. Additional survey time was spent in those habitats most likely to be utilized by wildlife (native vegetation, wildlife trails, etc.) or in habitats with the potential to support state- and/or federal-listed or otherwise sensitive species. Notes were made on the general habitat types, species observed, and the conditions of the Project site. A comprehensive list of the wildlife species observed during the survey is provided in Appendix D.

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SECTION 4.0 – RESULTS

4.1 SOILS

After review of USDA Soil Conservation Service and by referencing the USDA NRCS Web Soil Survey (USDA 2019), it was determined that the Proposed Project site is located within the Imperial Valley area (CA683). Based on the results of the database search, a total of three soils types were identified; each is detailed below and strongly associated with alluvial deposits (Appendix A, Figure 3).

4.1.1 Imperial Glenbar Silty Clay Loam, Wet, 0 to 2 percent Slopes

The Imperial soils are nearly level to gently sloping and are on flood plains and in old lake beds at elevations of -235 ft. to 300 ft. amsl. The Glenbar series consists of very deep, well drained soils that formed in stratified stream alluvium. The soil is dry to intermittently moist and is highly dependent on winter and summer monsoonal rains for moisture. The mean annual soil temperature at a depth of 20 inches ranges from 72 to 78 °F. Rock fragments or strata of contrasting texture are lacking to a depth of 40 inches or more. Very thin silty and very fine sandy strata are present in soil that has not been mixed by cultivation with organic matter that decreases irregularly with depth. Tongues ranging from silty clay to loamy sand fill old vertical cracks. The soil has platy or blocky structure and dry fragments may exhibit conchoidal fracture. The soil is dominantly moderately alkaline but can also be strongly alkaline.

4.1.2 Imperial Glenbar Silty Clay Loam, 2 to 5 percent Slopes

Similar to that described above in Section 4.1.1 however with a higher degree of slope.

4.1.3 Vint and Indio Very Fine Sandy Loam, Wet

Vint soils are typically very deep and are located on flood plains, originating from stratified stream alluvium from mixed, rocky sources. These soils typically have slopes of 0 to 3 percent. The soils are typically course-silty, calcareous, and often mixed with little organic matter. Typically found in elevations ranging from -230 ft. to 2,500 ft. amsl in hot, arid continental climates with hot summers and mild winters. These soils are somewhat excessively drained with very slow runoff and moderately rapid permeability.

4.2 JURISDICTIONAL WATERS

As stated earlier the existing conditions of the on-site retention basins will be addressed in a separate, discrete process and for the purposes of this report assume the areas have been drained and filled and baseline conditions are anticipated to be Developed areas. No natural drainages or wetlands were observed within the Survey Area. The Daffodil Canal is located approximately 30 ft. east of the Survey Area and the Main Canal is located approximately 400 ft. south of the main portion of the Survey Area (along the southern edge of the parcel). Both of the aforementioned canals are not anticipated to be impacted by the Proposed Project and are associated with agricultural irrigation and are sourced from the Colorado River (approximately 45 miles east).

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4.3 VEGETATION COMMUNITIES

Five vegetation communities were observed within and adjacent to the Proposed Project site: Sparse Disturbed habitat, Landscape/Ornamental vegetation, Developed lands, Bare Ground, and Pavement. A map showing the vegetation communities observed and other areas within the Proposed Project site is provided in Appendix A, Figure 5a, and the communities are described in the following subsections.

4.3.1 Sparse Disturbed

Disturbed habitat is often associated with frequent use, development, and enhanced erosion and generally consisted primarily of bare ground dominated by non-native annual species including Sahara mustard (*Brassica tournefortii*), Russian thistle (*Salsola* sp.), narrow-leaved oligomeris (*Oligomeris linifolia*), and Arabian schismus (*Schismus arabica*), with non-native grasses scattered throughout but with overall very low vegetation density. The overall habitat was open, with regular disturbance that most likely arises from routine vegetation removal and maintenance that is often associated with fringe habitat surrounding buildings and roads within energy generating facilities resulting in vegetation being widely spaced and the resulting Sparse qualification of this habitat. Vegetation averaged 4-6 inches In height and was confined to the borders of access roads and the existing retention ponds. Isolated occurrences of native species including salt heliotrope (*Heliotropium curassavicum*) and narrow-leaved oligomeris were observed; however, these species were in low density and did not constitute a separate community. A total of 4.39 acres of this type of habitat was mapped within the Survey Area.

4.3.2 Landscape/Ornamental

Landscape/Ornamental vegetation is comprised of purposefully planted and maintained species generally for aesthetic value or erosion control. These areas are often irrigated and maintained on a regular basis. Dominant Landscape/Ornamental plant species observed include Chinese banyan (*Ficus microcarpa* var. *nitida*). A total of 0.21 acres of this habitat was mapped within the Survey Area.

4.3.3 Developed

Developed areas are those where various forms of permanent structures such as buildings cover the soil surface or areas that consist of man-made features such as retention basins. This surface is recorded as separate from bare ground due to the erosional, use, and hydric features associated with the developed features. Due to the lack of permeability, buildings can channel water run-off and can result in unique erosional management considerations. Included within this habitat are the existing on-site retention basins and associated tamarisk scrub currently lining the basins; these areas are being addressed in a separate, discrete process and for the purposes of this report are considered Developed habitat. Approximately 13.23 acres of Developed area is present in the Study Area; and is generally associated with existing plant infrastructure.

4.3.4 Bare Ground

Bare Ground areas are generally devoid of vegetation, but do not contain any form of pavement. These areas are typically associated with unmarked roads and areas that have been previously cleared for anthropogenic use and are generally associated with the matrix located between Developed areas of the plant infrastructure. Compared to Developed areas, Bare Ground has higher water permeability and

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higher potential to support fossorial mammal species. Approximately 6.95 acres of Bare Ground area was mapped in the Survey Area.

4.3.5 Pavement

Areas designated as Pavement are generally existing roads, parking lots, and sidewalks and can be comprised of cement or asphalt. These areas are generally restricted to existing roadways and heavily-used portions of the existing plant. Approximately 0.23 acre of Pavement was mapped in the Survey Area.

4.4 SENSITIVE SPECIES

The following information is a list of abbreviations used to help determine listing status and/or the significance of biological sensitive resources potentially occurring on the Proposed Project site.

Rare Plant Rank (RPR)

List 1A	=	Plants presumed extinct in California.
List 1B	=	Plants rare and endangered in California and throughout their range.
List 2	=	Plants rare, threatened or endangered in California but more common elsewhere in their range.
List 3	=	Plants about which we need more information; a review list.
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RPR Extensions

0.1	=	Seriously endangered in California (greater than 80 percent of occurrences threatened/high degree and immediacy of threat).
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FE	=	Federally listed; Endangered
FT	=	Federally listed; Threatened
BCC	=	Birds of Conservation Concern

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State

ST	=	State listed; Threatened
SE	=	State listed; Endangered
SSC	=	State Species of Special Concern

Local

IID	=	Imperial Irrigation District-covered

The following information was used to determine the significance of biological resources potentially occurring within the Proposed Project site. The criteria used to evaluate the PFO of sensitive species on the Proposed Project site are outlined in Table 1.

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Table 1: Criteria for Evaluating Sensitive Species Potential for Occurrence (PFO)

PFO	CRITERIA
Absent:	Species is restricted to habitats or environmental conditions that do not occur within the Proposed Project site. Additionally, if the survey was conducted within the blooming period of the species and appropriate habitat was observed in the surrounding area but the species was not observed within the Proposed Project impact area it was considered absent.
Low:	Historical records for this species do not exist within the immediate vicinity (approximately 5 miles) of the Proposed Project site, and/or habitats or environmental conditions needed to support the species are of poor quality.
Moderate:	Either a historical record exists of the species within the immediate vicinity of the Proposed Project site (approximately 3 miles) and marginal habitat exists on the Proposed Project site, or the habitat requirements or environmental conditions associated with the species occur within the Proposed Project site, but no historical records exist within 5 miles of the Proposed Project site.
High:	Both a historical record exists of the species within the Proposed Project site or its immediate vicinity (approximately 1 mile), and the habitat requirements and environmental conditions associated with the species occur within the Proposed Project site.
Present:	Species was detected within the Proposed Project site at the time of the survey.

4.4.1 Special Status Plant Species

Factors used to determine the PFO included the quality of habitat, elevation, and the results of the biological reconnaissance-level survey. In addition, the location of prior CNDDB records of occurrence were used as additional data, but since the CNDDB is a positive-sighting database, this data was used only in support of the analysis from the previously identified factors.

Current database searches (CDFW 2019, CNPSEI 2019, and USFWS 2019) resulted in a list of four federal- and/or state-listed threatened and endangered, rare, or IID-covered (collectively, "special status") plant species documented to occur within five miles of the Proposed Project site. After the literature review and the biological reconnaissance-level survey, it was determined that all four species were considered absent from the survey area based on the assessment of the various habitat types observed and subsequent lack of habitat suitability.

The following four plant species are considered **Absent** from the Proposed Project site due to lack of suitable habitat of the Proposed Project site:

- Chaparral sand-verbena (*Abronia villosa var. aurita*) –List 1B.1
- Gravel milk-vetch (*Astragalus sabulonum*) – List 2B.2
- Abrams' spurge (*Euphorbia abramsiana*) –List 2B.2
- California satintail (*Imperata brevifolia*) –List 2B.1

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4.4.2 Sensitive Wildlife Species

A current database search (CDFW 2019 and USFWS 2019) resulted in a list of nine federal- and/or state-listed endangered or threatened, BCC, SSC, or IID-covered wildlife species known to occur in the vicinity of the Proposed Project site. After a literature review and the assessment of the various habitat types within the Proposed Project site, it was determined that five sensitive wildlife species are considered absent from the Proposed Project site, five species have a low PFO, two species have a moderate PFO, and no species have a high PFO, within the Proposed Project site. Factors used to determine PFO included the quality of habitat and the location of prior CNDDB records of occurrence.

The following five wildlife species are considered **absent** from the Proposed Project site due to lack of suitable habitat on the Proposed Project site:

- American badger (*Taxidea taxus*)- SSC
- western yellow bat (*Lasiurus xanthinus*) – roosting - SSC
- Flat-tailed horned lizard (*Phrnosoma macallii*) – SSC, IID
- northern leopard frog (*Lithobates pipens*) – SSC, IID
- yellow warbler - nesting (*Setophaga petechia*) – BCC, SSC, IID

The following five wildlife species have a **low** PFO on the Proposed Project site due to low-quality habitat (e.g. Developed areas such as buildings and pipping) on the Proposed Project site:

- big free-tailed bat (*Nyctinomops macrotis*) – SSC, IID
- pocketed free-tailed bat (*Nyctinomops femorosaccus*) – SSC, IID
- western mastiff bat (*Eumops perotis californicus*) – roosting – SSC, IID
- western yellow bat (*Lasiurus xanthinus*) – foraging - SSC
- yellow warbler - foraging – BCC, SSC, IID

The analysis of the CNDDB search and field survey resulted in two species with a **moderate** potential to occur on the Proposed Project site. Burrowing owl (*Athene cunicularia;* Nesting and foraging) and western mastiff bat (foraging) have a moderate PFO and are described below:

Burrowing owl - SSC, IID

The burrowing owl inhabits dry, open, native or non-native grasslands, deserts, and other arid environments with low-growing and low-density vegetation (Ehrlich 1988). It typically use burrows made by mammals such as California ground squirrels (*Spermophilus beecheyi*), foxes, or badgers (Trulio 1997). When burrows are scarce within the Proposed Project area, the burrowing owl may use man-made structures such as openings beneath cement or asphalt pavement, pipes, culverts, and nest boxes. Low-quality suitable habitat located for this species occurs along the access road berms and in the eastern and western portions of the Survey Area and within riprap surrounding the existing retention ponds. Additionally, higher-quality nesting habitat is located to the west of the Proposed Project area within an active agricultural area and Proposed Project related features may be within the 500-foot buffer associated with this species. This species has only been recorded greater than one mile from the Survey Area and no individuals were observed

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during the survey. Suitable foraging habitat is located within and immediately surrounding the Survey Area; therefore, the burrowing owl has a moderate PFO within the Proposed Project site.

Western mastiff bat – foraging - SSC, IID

Uncommon resident in southern California, occurring from the coast eastward to the Colorado Desert. Occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, annual and perennial Grasslands, palm oases, Chaparral, desert scrub, and urban environments (Tremor et. al. 2017). This species has been recorded within three miles of the Proposed Project site and low-quality roosting habitat exists within the existing buildings and piping structures within the Survey Area.

The analysis of the CNDDB search and field survey resulted in no species with a **high** PFO within the Proposed Project site.

4.5 GENERAL PLANT SPECIES

A total of 14 plant species were observed during the survey. Plant species observed or detected during the site survey were dominated by non-native species with occasional native species interspersed. No sensitive species were observed during the survey effort. A complete list of plants observed is provided in Appendix C.

4.6 GENERAL WILDLIFE SPECIES

A total of 10 wildlife species were observed during the survey. Wildlife species observed or detected during the site survey were characteristic of the existing Proposed Project site conditions. A complete list of wildlife observed is provided in Appendix D.

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SECTION 5.0 – PROPOSED PROJECT IMPACTS

5.1 ANALYSIS OF PROPOSED PROJECT EFFECTS

The Proposed Project is not anticipated to impact any sensitive or native habitat. All impacts are anticipated to occur to previously developed areas and therefore are not anticipated to be significant.

5.1.1 Direct Impacts

Impacts resulting from proposed activities associated with the existing steam turbine and bottoming units, OEC 1 and OEC 2, OEC 11 and OEC 13, and Emergency Fire Water Pump are combined into one impact area detailed in Appendix A, Figure 5b. The construction and operations are located within previously developed areas or open space areas dominated by non-sensitive habitats. Total impacts to each habitat type are detailed in Table 2 below.

Table 2: Direct Impacts by Habitat Type

Habitat Type	Anticipated Impact in sq. ft.	Anticipated Impacts in Acres
Sparse Disturbed	44,431	1.02
Developed	218,236	5.01
Bare Ground	71,438	1.64
Total	334,105	7.67

Note: No impacts are expected to Landscape/Ornamental vegetation or Pavement and therefore those habitat types are not listed within Table 2.

5.1.2 Indirect Impacts

Increased land use associated with the upgrade of existing facilities and the installation of new facilities will result in more anthropogenic activity within the Survey Area and therefore potentially more noise, vibration, artificial light, and/or an overall degradation of existing and surrounding habitat. However, the baseline conditions at the site are consistent with the conditions that will exist during operations.

5.2 CUMULATIVE IMPACT ANALYSIS

The Proposed Project area is previously developed and surrounded by agricultural land and has limited to no connectivity with patches of native habitat. The ultimate goal of the Proposed Project is to increase renewable energy generation capacity and reduce overall plant emissions. All anticipated impacts associated with the Proposed Project are located within the existing footprint of the Heber 1 geothermal facility, and land use within the parcel will remain unchanged.

5.3 MITIGATION MEASURES

This Proposed Project is located within the IID HCP. All impacts associated with the Proposed Project are to occur to non-sensitive habitats and therefore, no compensatory mitigation is required. However, it is recommended that the following measures be implemented to minimize impacts to biological resources or species:

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- Environmental awareness training should occur prior to the start of any construction-related activities. Special focus should be made on sensitive animals that have a PFO within the Survey Area (e.g. burrowing owl and western mastiff bat).
- If construction or vegetation removal activities are to occur during the bird breeding season (February 15 – August 31) a nesting bird survey should be conducted prior to the start of construction or vegetation clearing activities. If active nests are found, an appropriate nest buffer shall be established by a qualified biologist until the nest fledges or fails naturally.
- Due to surrounding agricultural areas and low-quality but suitable habitat within the Survey Area a focused survey for burrowing owl is suggested before construction activities commence.
- If modification of the existing buildings is required a focused bat survey should be performed for western mastiff bat as this species may roost in building overhangs or within piping infrastructure located within the Survey Area.

5.4 CONCLUSIONS

Through the implementation of the above mitigation measures, it is expected the Proposed Project will have a less than significant impact on species diversity or richness of the Survey Area or surrounding ecosystem. A total of nine sensitive wildlife species were evaluated for their PFO within the Survey Area. Based on the biological reconnaissance-level survey and database analysis, two wildlife species, burrowing owl (*Athene cunicularia*) and western mastiff bat (*Eumops perotis*) have a moderate PFO. The other species were determined absent or with a low PFO due to lack of suitable habitat. No sensitive species were observed during the surveys. Through the implementation of the above listed mitigation measures, no significant impacts are anticipated to biological resources as a result of Proposed Project-related activities.

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SECTION 6.0 – REFERENCES

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, and T.J. Rosatti, and D.H. Wilken (editors)
2012 The Jepson Manual: Vascular Plants of California, Second Edition. University of California Press, Berkeley, CA.

California Department of Fish and Game (CDFW)
2019 California Natural Diversity Database (CNDDB). RareFind Version 3.1.0. Database Query for the *Heber, Mount Signal, Seeley, El Centro, Holtville W, Holtville E, Bonds Corner,* and *Calexico* California USGS 7.5 minute quadrangles. Wildlife and Habitat Data Analysis Branch.

California Native Plant Society Electronic Inventory (CNPSEI)
2019 Inventory of Rare and Endangered Plants (online edition). Rare Plant Scientific Advisory Committee, California Native Plant Society, Sacramento, California. Accessed December 2016 from http://www.cnps.org/inventory for the *Kane Spring, Kane Spring NW, Kane Spring NE, Obsidian Butte, Westmorland, Brawley NW, Superstition Mountain, Plaster City NW,* and *Harpers Well*, California USGS 7.5 minute quadrangles.

Renewable Energy Action Team
2016 Desert Renewable Energy Conservation Plan. California. Accessed on September 20, 2019. https://www.drecp.org/finaldrecp/

Ehrlich P.R., D.S. Dobkin, and D. Wheye
1988 The Birder's Hanbook; A Field Guide to the Natural History of North American Birds. Simon and Schuster Inc. New York.

Imperial Irrigation District (IID)
2006 Imperial Valley Natural Community Conservation Plan and Habitat Conservation Plan. Planning Agreement No. 2810-2004-001-06. February 2006.

Sawyer, J.O., T. Keeler-Wolf, and J. M. Evens
2009 *A Manual of* California *Vegetation Second Edition*. California Native Plant Society, Sacramento, California.

Tremore, Scott, D. Stokes, W. Spencer, J. Diffendorfer, H. Thomas, S. Chivers, and P. Unitt
2017 *San Diego County Mammal Atlas*. Proceedings of the San Diego Society of Natural History. No. 46. August 1, 2017.

Trulio, Lynne A.
1997 Strategies for Protecting Western Burrowing Owls (*Athene cunicularia hypugaea*) from Human Activities. In: Duncan, James R.; Johnson, David H.; Nicholls, Thomas H., eds. Biology and conservation of owls of the Northern Hemisphere: 2nd International symposium. Gen. Tech. Rep. NC-190. St. Paul, MN: U.S. Dept. of Agriculture, Forest Service, North Central Forest Experiment Station. 461-465.

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U.S. Department of Agriculture (USDA)

2019 Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Official Soil Series Descriptions [Online WWW]. Available URL: "https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx" [Accessed July 2019].

United States Fish and Wildlife Service (USFWS)

2019 *Sensitive Species Occurrences*. https://www.fws.gov/carlsbad/gis/cfwogis.html. Database query within five miles of the proposed Heber 1 project Survey Area. Accessed Summer 2019. Carlsbad Branch.

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SECTION 7.0 – LIST OF PREPARERS

Clark Austin – Staff Biologist, report author
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Brian Cropper – Associate Biologist, report author
Phillip Carlos – Geographic Information Systems Analyst, map designer

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APPENDIX A – FIGURES

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Legend

Project Location

N

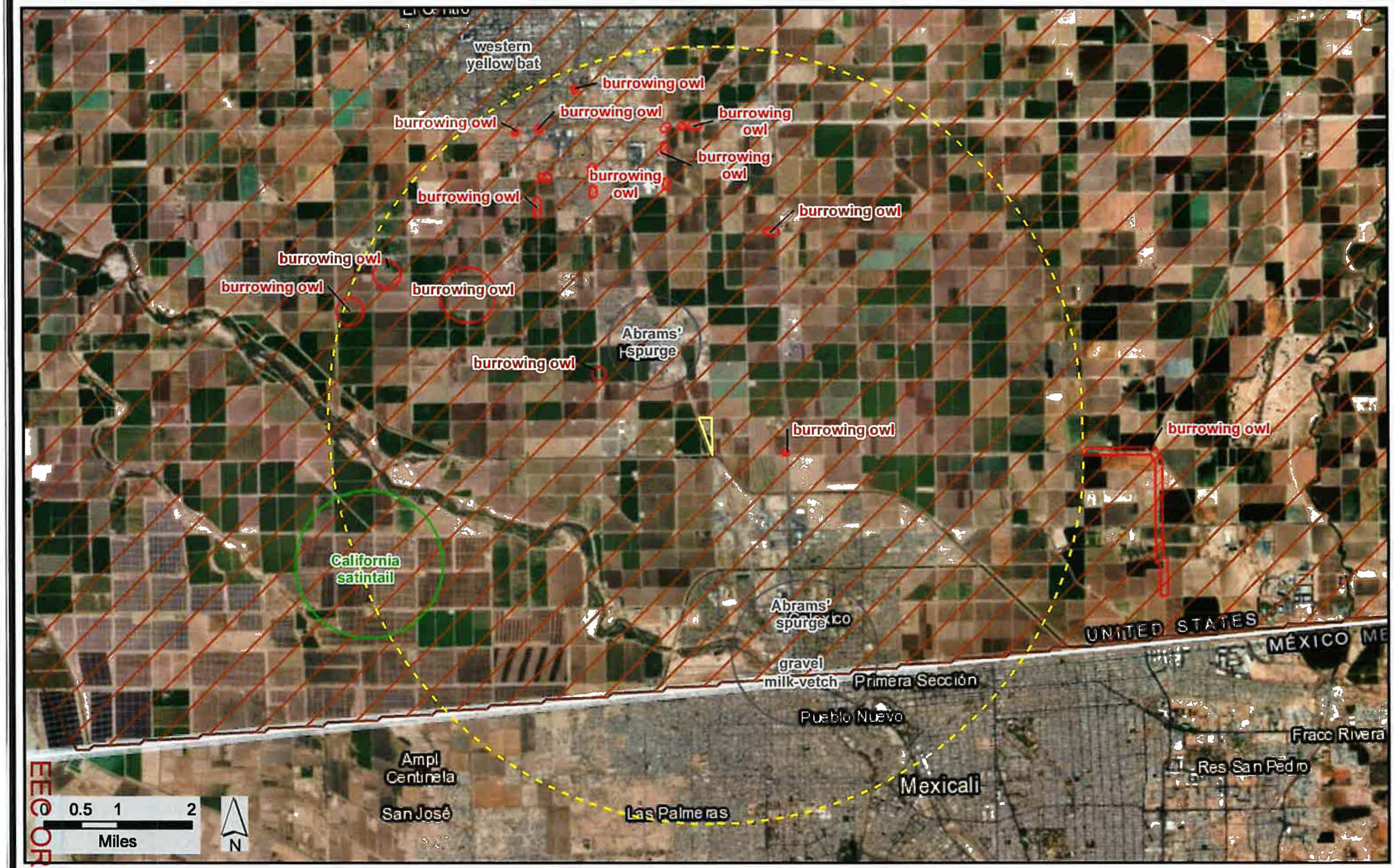
0 150 300 600

Feet

Figure 1
Project Location

Name: 21172 BIDT Fig 1 Location & Vicinity.mxd
Print Date: 9/25/2019, Author: pcarlos

EEC ORIGINAL PKG



Legend

- Project Location
- 5 Mile Buffer
- Imperial Irrigation District HCP

CNDDB selection

- Plant (circular)
- Multiple (circular)
- Animal (80m)
- Animal (specific)
- Animal (non-specific)
- Animal (circular)

Figure 2
IID HCP and CNDDB Occurrences

Name: 21172 BIO Fig 2 IID HCP, CNDDB Occurrences, and USFWS Occurrences.Mxd
Print Date: 10/3/2019, Author: pcarlos

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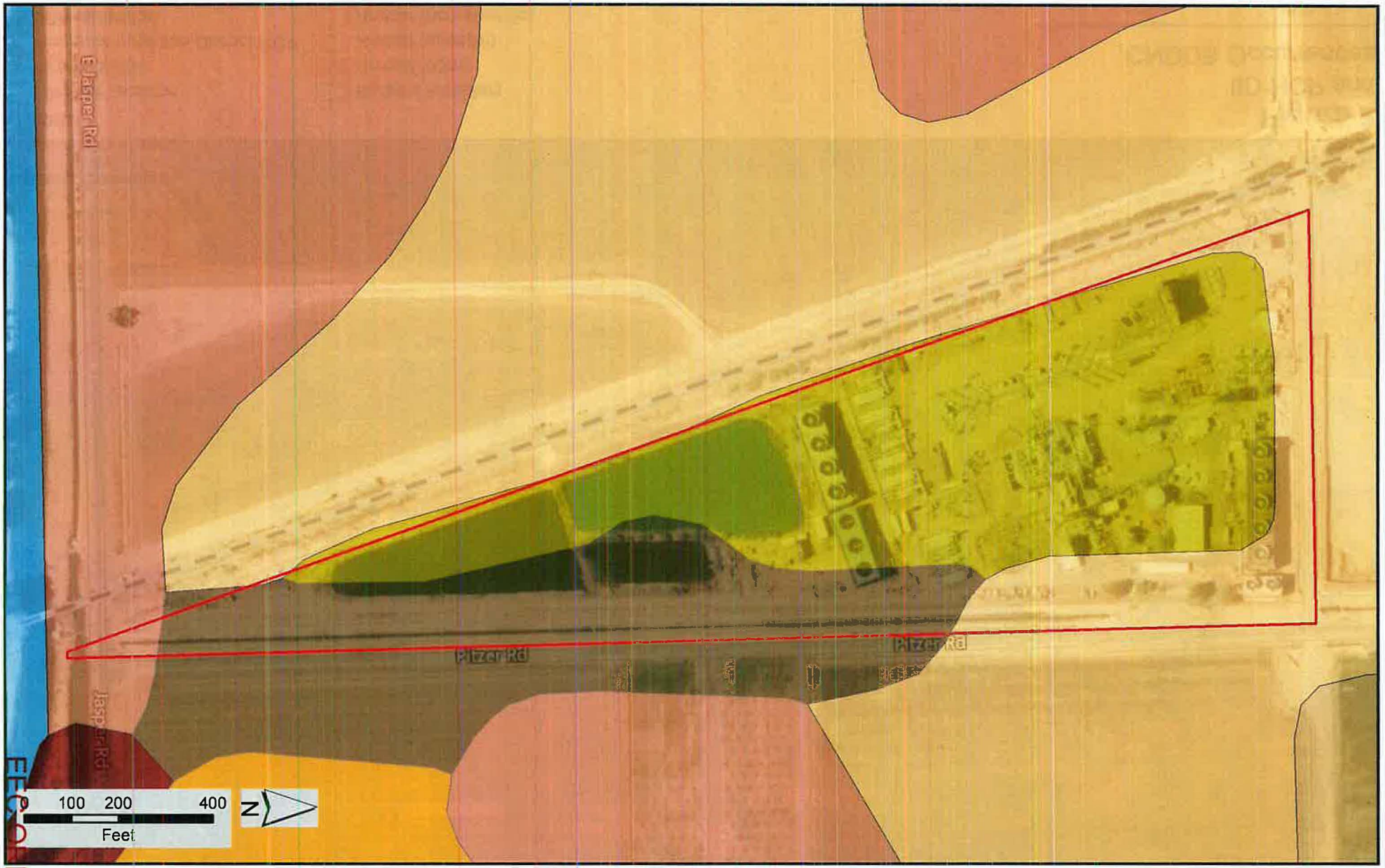
EEC ORIGINAL FILE



Legend

- Project Location

Soil Types

- Water
- Indio loam, wet
- Holtville silty clay, wet
- Imperial silty clay, wet
- Meloland very fine sandy loam, wet
- Vint and Indio very fine sandy loams, wet
- Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes
- Imperial-Glenbar silty clay loams, 2 to 5 percent slopes

Figure 3
Soils

Name: 21172 BIO Fig 3 Soils.Mxd
Print Date: 10/2/2019, Author: pcarlos

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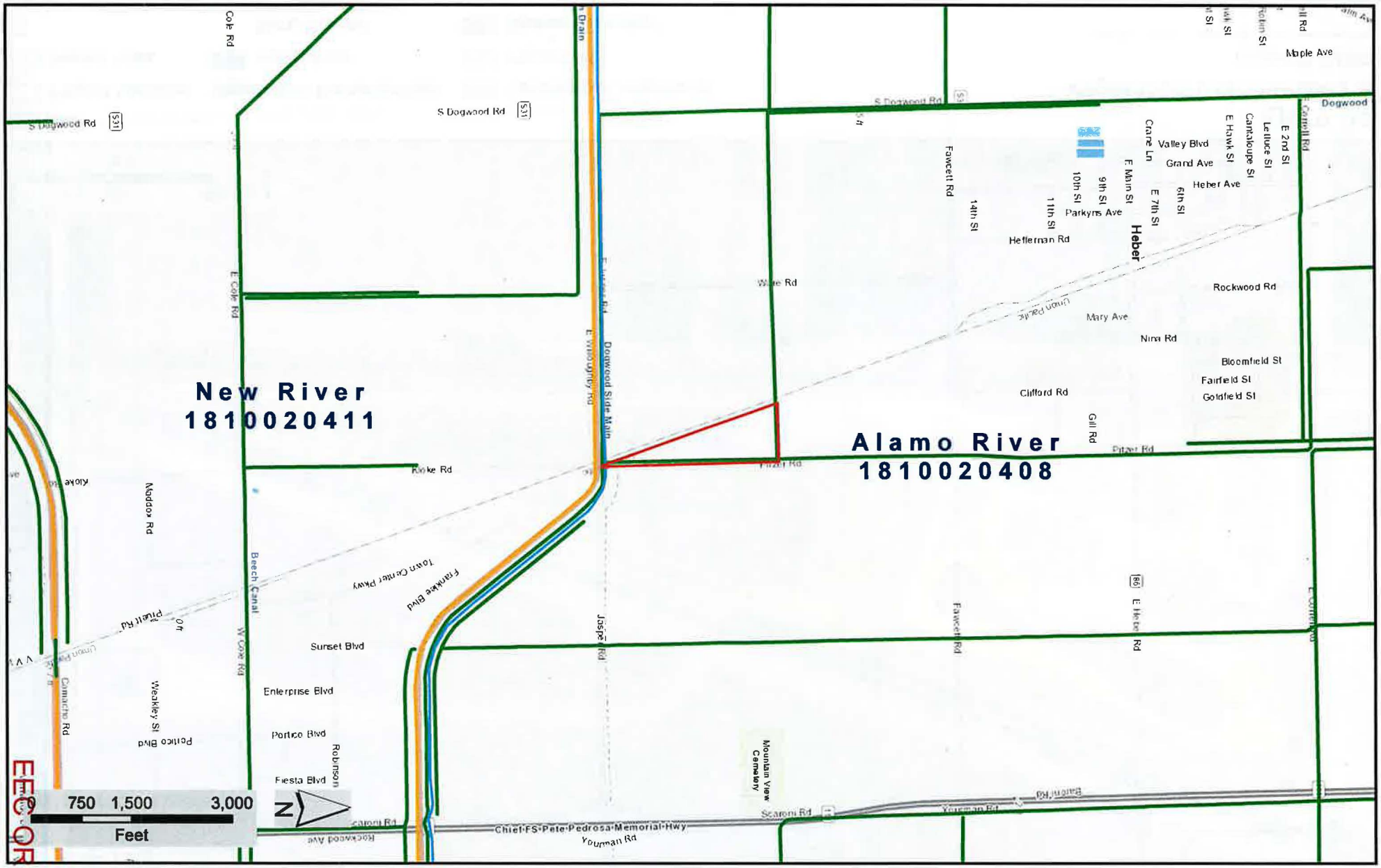

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Legend

- Project Location
- HUC-10 Watershed Boundary

USGS NHD Flowlines

- Artificial Path
- Canal Ditch

USFWS Mapped NWI Type

- Freshwater Pond
- Riverine

Figure 4
Jurisdictional Waters and Associated Wetlands

Name: 21172 BIO Fig 4 Jurisdictional Waters and Associated Wetlands.Mxd
Print Date: 10/2/2019, Author: pcarlos

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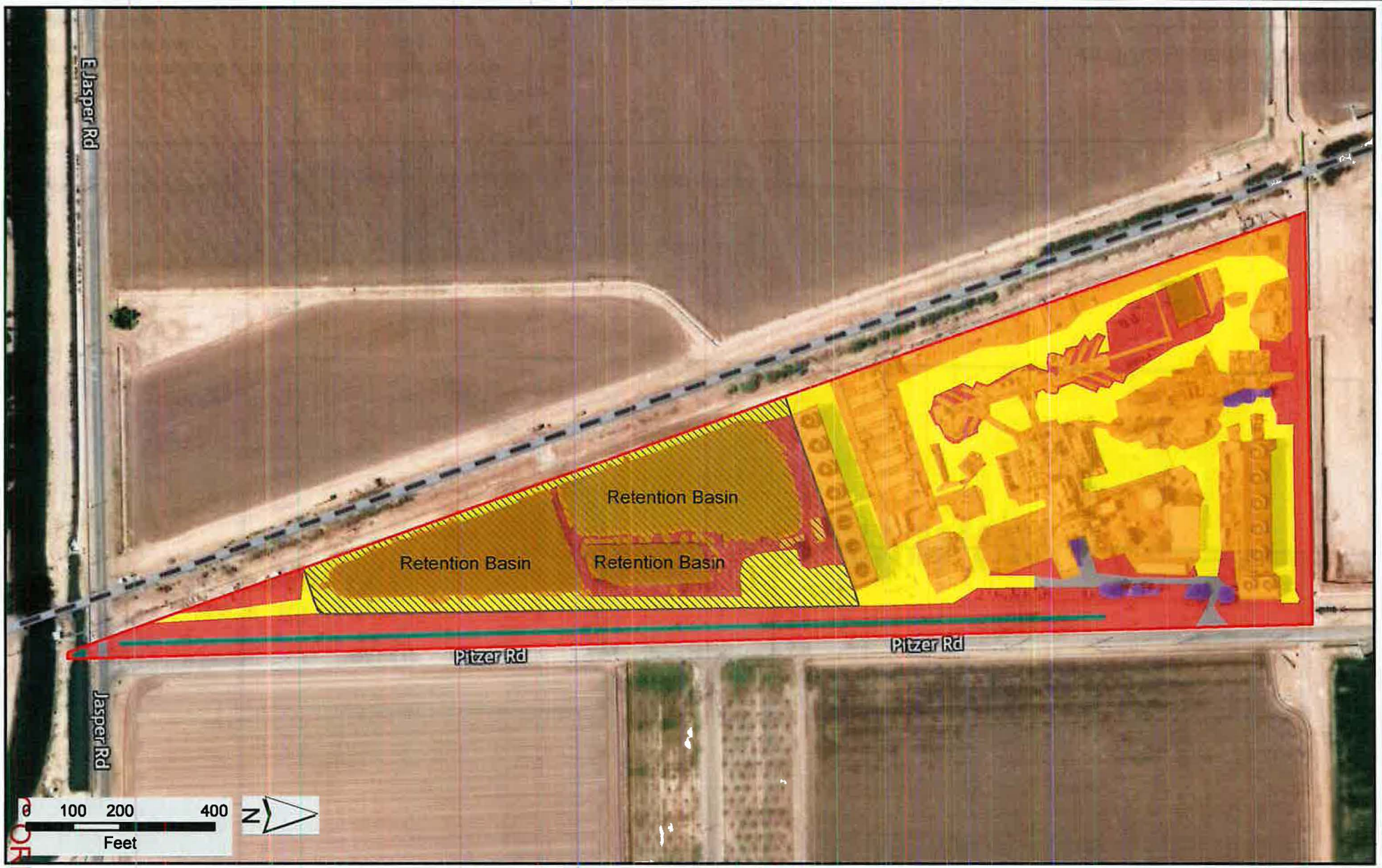

Legend

- Project Location
- Impact Area

Vegetation Communities

- Agriculture
- Bare Ground
- Developed
- Landscape/Ornamental
- Pavement
- Sparse Disturbed

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Figure 5a
Vegetation Communities & Impact Area

Name: 21172 BIO Fig 5a Vegetation Communities & Impact Areas.Mxd
Print Date: 10/30/2019, Author: pcarlos

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0 100 200 400
Feet

N

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Legend

- Project Location

Vegetation Communities

- Agriculture
- Bare Ground
- Developed
- Landscape/Ornamental
- Pavement
- Sparse Disturbed

Figure 5b
Vegetation Communities & Site Plan

Name: 21172 BIO Fig 5b Vegetation Communities & Site Plan.Mxd
Print Date: 10/30/2019, Author: pcarles

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APPENDIX B – SITE PHOTOGRAPHS

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APPENDIX B – SITE PHOTOGRAPHS (July 2019)



Photo 1. Overview of a typical access road along the western edge of the Study Area. View south.

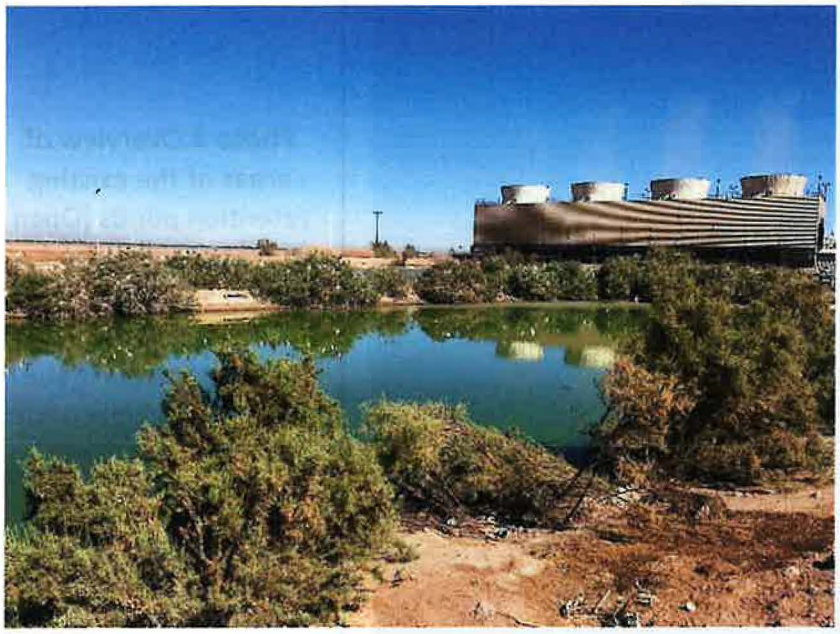

Photo 2. Overview of the Tamarisk Thickets and associated egret rookery. View northwest.

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Photo 3. Overview of existing Retention Ponds and the surrounding Disturbed habitat. View southwest.



Photo 4. Overview of areas of the existing retention ponds (Open Water), Disturbed habitat surrounding the ponds, and existing cooling towers in the background. View north.

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Photo 5. Overview from the eastern edge of the Study Area. View northeast.



Photo 6. Typical overview of Developed areas. View north.

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Photo 7. Typical overview of Landscape/Ornamental areas. View southeast.



Photo 8. Detail overview of Developed areas, Pavement, Bare Ground, and Disturbed habitats. View south.

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APPENDIX C – PLANT SPECIES LIST

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APPENDIX C – PLANT SPECIES LIST

Scientific Name	Common Name
ANGIOSPERMS (EUDICOTS)	
ASTERACEAE	**SUNFLOWER FAMILY**
Geraea canescens	desert sunflower
BORAGINACEAE	**BORAGE FAMILY**
Cryptantha sp.	cryptantha
BRASSICACEAE	**MUSTARD FAMILY**
Brassica tournefortii	sahara mustard
Lepidium nitidum	shining peppergrass
CHENOPODIACEAE	**GOOSEFOOT FAMILY**
Salsola tragus	Russian thistle
Suaeda nigra	bush seepweed
ONAGRACEAE	**EVENING PRIMROSE FAMILY**
Oenothera deltoides subsp. *deltoides*	dune evening-primrose
PLANTAGINACEAE	**PLANTAIN FAMILY**
Plantago sp.	plantain
POLYGONACEAE	**BUCKWHEAT FAMILY**
Chorizanthe rigida	rigid spineflower
Eriogonum inflatum	desert trumpet
RESDACEAE	**MIGNONETTE FAMILY**
Oligomeris linifolia	narrow-leaved oligomeris
SOLANACEAE	**NIGHTSHADE FAMILY**
Datura wrightii	jimson weed
TAMARICACEAE	**TAMARISK FAMILY**
Tamarix sp.	tamarisk
ANGIOSPERMS (MONOCOTS)	
POACEAE	**GRASS FAMILY**
Schismus arabicus	Arabian schismus

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APPENDIX D – WILDLIFE SPECIES LIST

APPENDIX D – WILDLIFE SPECIES LIST

Scientific Name	Common Name
CLASS AVES	**BIRDS**
ARDEIDAE	**HERONS**
Ardea alba	great egret
Bubulcus ibis	cattle egret
Butorides virescens	green heron
CHARADRIIDAE	**PLOVERS, DOTTERELS, LAPWINGS**
Charadrius vociferus	killdeer
COLUMBIDAE	**PIGEONS & DOVES**
Columba livia	rock pigeon
Zenaida asiatica	white-winged dove
ICTERIDAE	**ORIOLES, GRACKLES, COWBIRDS**
Agelaius phoeniceus	red-winged blackbird
Quiscalus mexicanus	great-tailed grackle
RALLIDAE	**RAILS**
Fulica americana	American coot
RECURVIROSTRIDAE	**AVOCETS & STILTS**
Himantopus mexicanus	black-necked stilt

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APPENDIX C – PHASE I CULTURAL RESOURCES REPORT

CHAMBERS GROUP

Note to the Reader

On December 17th, 2019 ORMAT Nevada Inc. (ORMAT) submitted an application to the County of Imperial Planning & Development Services Department to amend Conditional Use Permit (CUP) No. 15-0013 for the Heber 1 geothermal facility in Imperial County, CA. The amendment proposed a Repower Project which would take the existing dual-flash steam turbine generator out of service and install two new OEC geothermal power generation units to increase performance of the facility (Project). The Project also included installation of new equipment including six 10,000-gallon isopentane storage tanks and an evacuation skid/vapor recovery maintenance unit. Based on close coordination with the County of Imperial ORMAT has decided to reduce the number of 10,000 gallon isopentane tanks on the Heber 1 site from six tanks to two tanks. While these revisions are not reflected in the text of the following technical report, it does not materially change any of the impact assessments or technical conclusions within the report.

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PHASE I CULTURAL RESOURCES REPORT FOR THE HEBER 1 REPOWER PROJECT, IMPERIAL COUNTY, CALIFORNIA

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September 4, 2019

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NATIONAL ARCHAEOLOGICAL DATABASE INFORMATION

Authors: Ted Roberts and Lauren DeOliveira.

Firm: Chambers Group, Inc.

Client/Project Proponent: Ormat Nevada, Inc

Report Date: September 4, 2019

Report Title: Phase I Cultural Resources Report for the Heber 1 Repower Project, Imperial County, California

Type of Study: Cultural Resources Phase 1 Study

New Sites: N/A

Updated Sites: N/A

USGS Quad: Heber 7.5-minute quadrangle

Acreage: 20

Permit Numbers: N/A

Key Words: County of Imperial, Community of Heber, Negative Survey, CEQA, Reconnaissance Survey, *Heber* USGS Quadrangle

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SECTION 1.0 – INTRODUCTION

Chambers Group, Inc. (Chambers Group) has been contracted by Ormat Nevada, Inc., within the Community of Heber, Imperial County, California, to complete an Archaeological Assessment (including a literature review and reconnaissance survey) for the proposed Heber 1 Repower Project. The proposed project will include the replacement of the steam turbine and bottoming units with an integrated three-level unit, new air-cooled converter, new brine feed exchangers along with feed pumps, and a portion of the piping systems. The project is proposed within 20 acres of the existing Heber 1 geothermal facility located at 895 Pitzer Road, Imperial County, California.

Chambers Group completed an archaeological literature review and records search and reconnaissance survey of the 20-acre project location. This report outlines the archaeological findings and results of both efforts.

The following study has been conducted in accordance with the California Environmental Quality Act (CEQA).

1.1 REGULATORY FRAMEWORK

Work for this project was conducted in compliance with CEQA. The regulatory framework as it pertains to cultural resources under CEQA is detailed below.

Under the provisions of CEQA, including the CEQA Statutes (Public Resources Code [PRC] §§ 21083.2 and 21084.1), the CEQA Guidelines (Title 14 California Code of Regulations [CCR], § 15064.5), and PRC § 5024.1 (Title 14 CCR § 4850 et seq.), properties expected to be directly or indirectly affected by a proposed project must be evaluated for CRHR eligibility (PRC § 5024.1).

The purpose of the California Register of Historical Resources (CRHR) is to maintain listings of the state's historical resources and to indicate which properties are to be protected, to the extent prudent and feasible, from material impairment and substantial adverse change. The term *historical resources* includes a resource listed in or determined to be eligible for listing in the CRHR; a resource included in a local register of historical resources; and any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (CCR § 15064.5[a]). The criteria for listing properties in the CRHR were expressly developed in accordance with previously established criteria developed for listing in the National Register of Historic Places (NRHP). The California Office of Historic Preservation (OHP 1995:2) regards "any physical evidence of human activities over 45 years old" as meriting recordation and evaluation.

1.1.1 CALIFORNIA REGISTER OF HISTORIC RESOURCES

A cultural resource is considered "historically significant" under CEQA if the resource meets one or more of the criteria for listing on the CRHR. The CRHR was designed to be used by state and local agencies, private groups, and citizens to identify existing cultural resources within the state and to indicate which of those resources should be protected, to the extent prudent and feasible, from substantial adverse change. The following criteria have been established for the CRHR. A resource is considered significant if it:

1. is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. is associated with the lives of persons important in our past;

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3. embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting one or more of the above criteria, historical resources eligible for listing in the California Register must retain enough of their historic character or appearance to be able to convey the reasons for their significance. Such integrity is evaluated in regard to the retention of location, design, setting, materials, workmanship, feeling, and association.

Under CEQA, if an archeological site is not a historical resource but meets the definition of a "unique archeological resource" as defined in PRC § 21083.2, then it should be treated in accordance with the provisions of that section. A *unique archaeological resource* is defined as follows:

- An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:
    - Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information
    - Has a special and particular quality, such as being the oldest of its type or the best available example of its type
    - Is directly associated with a scientifically recognized important prehistoric or historic event or person

Resources that neither meet any of these criteria for listing in the CRHR nor qualify as a "unique archaeological resource" under CEQA PRC § 21083.2 are viewed as not significant. Under CEQA, "A non-unique archaeological resource need be given no further consideration, other than the simple recording of its existence by the lead agency if it so elects" (PRC § 21083.2[h]).

Impacts that adversely alter the significance of a resource listed in or eligible for listing in the CRHR are considered a significant effect on the environment. Impacts to historical resources from a proposed project are thus considered significant if the project (1) physically destroys or damages all or part of a resource; (2) changes the character of the use of the resource or physical feature within the setting of the resource, which contributes to its significance; or (3) introduces visual, atmospheric, or audible elements that diminish the integrity of significant features of the resource.

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SECTION 2.0 – PROJECT DESCRIPTION AND LOCATION

2.1 PROJECT DESCRIPTION

Chambers Group has been contracted by Ormat Nevada Inc., within the Community of Heber, Imperial County, California, to complete an Archaeological Literature Review and records search along with a reconnaissance survey of the 20-acre project area. This study is for the proposed construction of the Heber 1 Repower, which will include the replacement of the steam turbine and bottoming units with an integrated three- level unit, new air-cooled converter, new brine feed exchangers along with feed pumps, and a portion of the piping systems. The project is proposed within the existing footprint of the Heber 1 Geothermal Facility.

The purpose of this investigation is to assess the potential for significant archaeological deposits and/or materials within the proposed project area and to determine if the current project has the potential to adversely affect any significant cultural materials.

2.2 PROJECT LOCATION

The project is located at 895 Pitzer Road within the Community of Heber, Imperial County, California. The 20-acre project area is located immediately northwest of the intersection of Pitzer Road and Jasper Road, west of CA-111. Specifically, the proposed project is located on the Heber 7.5-min quadrangle, Section 34, in Township 16 South, Range 14. Regional access to the project area is provided via CA Route 111 in Imperial County, California.

The project area encompasses the existing Heber 1 Geothermal Facility and retention ponds (Figure 1). The reconnaissance survey was designed to assess and evaluate the entire project area.

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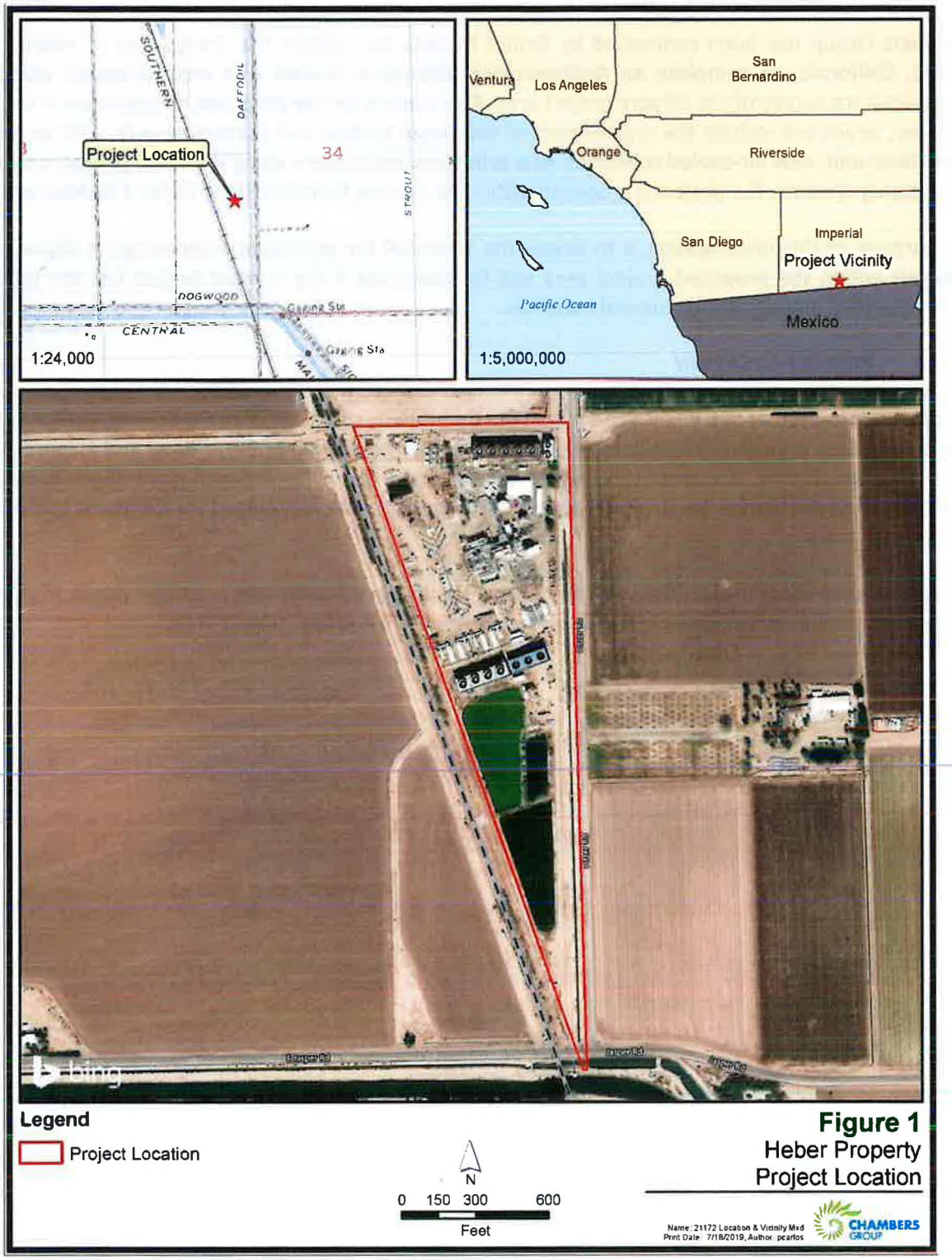
Figure 1: Project Location and Vicinity Map



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SECTION 3.0 – BACKGROUND

3.1 ETHNOGRAPHY AND ARCHAEOLOGY

The Project area was occupied by the Kumeyaay and Cahuilla people. Following is a brief ethnographic and archaeological summary of the Kumeyaay and Cahuilla.

3.1.1 Kumeyaay

The predominant Native American people occupying the region encompassing the current project area were the Kumeyaay. Eighteenth-century Spanish explorers and settlers used the collective term "Diegeño" for these people, which referred to bands living near the presidio and mission of San Diego de Alcalá. Today, members of the tribe prefer to be called Kumeyaay (Luomala 1978).

The territory of the Kumeyaay extended north from Todos Santos Bay near Ensenada, Mexico to the mouth of the San Luis Rey River in north San Diego County, and east to the Sand Hills in central Imperial Valley near the current project area. The Kumeyaay occupied the southern and eastern desert portions of the territory, while the Ipai inhabited the northern coastal region (Luomala 1978).

The primary source of subsistence for the of Kumeyaay was vegetal food. Seasonal travel followed the ripening of plants from the lowlands to higher elevations of the mountain slopes. Buds, blossoms, potherbs, wild seeds, cactus fruits, and wild plums were among the diet of both groups. The Kumeyaay practiced limited agriculture within the floodplain areas of their territory. Melons, maize, beans, and cowpeas were planted. Women sometimes transplanted wild onion and tobacco plants to convenient locations and sowed wild tobacco seeds. Deer, rodents, and birds provided meat as a secondary source of sustenance. Families also gathered acorns and piñon nuts at the higher altitudes. Village locations were selected for seasonal use and were occupied by exogamous, patrilineal clans. Three or four clans would winter together and then disperse into smaller bands during the spring and summer (Luomala 1978).

Kumeyaay structures varied with the seasons. Summer shelter consisted of a wind break, tree, or a cave fronted with rocks. Winter dwellings had slightly sunken floors with dome-shaped structures made of brush thatch covered with grass and earth (Gifford 1931; Luomala 1978).

Upon death, the Kumeyaay cremated the body of the deceased. Ashes were placed in a ceramic urn and buried or hidden in a cluster of rocks. The family customarily held a mourning ceremony one year after the death of a family member. During this ceremony, the clothes of the deceased individual were burned to ensure that the spirit would not return for his or her possessions (Gifford 1931; Luomala 1978).

It is estimated that the pre-contact Kumeyaay population living in this region ranged from approximately 3,000 (Kroeber 1925) to 9,000 (Luomala 1978). Beginning in 1775, the semi-nomadic life of the Kumeyaay began to change as a result of contact with European-Americans, particularly from the influence of the Spanish missions. Through successive Spanish, Mexican, and Anglo-American control, the Kumeyaay people were forced to adopt a sedentary lifestyle and accept Christianity (Luomala 1978). As of 1968, Kumeyaay population was somewhere between approximately 1,322 (Shipek 1972, included in Luomala 1978) and 1,522 (Luomala 1978) and by 1990 an estimated 1,200 Kumeyaay lived on reservation lands while 2,000 lived elsewhere (Pritzker 2000).

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3.1.2 Cahuilla

The project area currently falls within the ethnographic territory of the Cahuilla, whose ancestors may have entered this region of Southern California approximately 3,000 years ago (Moratto 1984: 559-560). The Cahuilla ancestral territory is located near the geographic center of Southern California and varied greatly topographically and environmentally, ranging from forested mountains to desert areas. Natural boundaries such as the Colorado Desert provided the Cahuilla separate territory from the neighboring Mojave, Ipai, and Tipai. In turn, mountains, hills, and plains separated the Cahuilla from the adjacent Luiseno, Gabeielino and the Serrano (Bean 1978: 575).

The Cahuilla relied heavily on the exploitation and seasonal availability of faunal and floral resources through a pattern of residential mobility that emphasized hunting and gathering. Important floral species used in food, for manufacturing of products, and/or for medicinal uses primarily included acorns, mesquite and screw beans, piñon nuts, and various cacti bulbs (Bean 1978:578). Coiled-ware baskets were common and used for a variety of tasks including food preparation, storage, and transportation (Bean 1978:579).

Networks of trails linked villages and functioned as hunting, trading, and social conduits. Trade occurred between the Cahuilla and tribes such as the Gabrieleno as far west as Santa Catalina and the Pima as far east as the Gila River. Trades of both goods and technologies were frequently exchanged between the Cahuilla and nearby Serrano, Gabrielino, and Luiseño cultural groups (Bean 1978:575-582).

The Cahuilla are believed to have first come into contact with Europeans prior to the Juan Bautista de Anza expedition in 1774; however, little direct contact was established between the Cahuilla and the Spanish except for those baptized at the Missions San Gabriel, San Luis Rey, and San Diego (Bean 1978:583-584). Following the establishment of several *asistencias* near the traditional Cahuilla territories, many Spanish cultural forms — especially agriculture and language — were adopted by the Cahuilla people (Bean 1978:583-584; Lech 2012:17-30).

Through the Rancho and American periods, the Cahuilla continued to retain their political autonomy and lands despite more frequent interactions with European-American immigrants. In 1863, a large number of the population were killed by a sweeping smallpox epidemic that affected many of the tribal groups in Southern California. The first reservations established in Riverside County ca. 1865 saw many of the Cahuilla remaining on their traditional lands. After 1891, however, all aspects of the Cahuilla economic, political, and social life were closely monitored by the Federal Government; a combination of missionaries and government schools drastically altered the Cahuilla culture (Bean 1978:583-584).

3.2 PREHISTORY

Archaeological studies have been limited in the Salton Sea desert region. This lack of archaeological investigation has resulted in undefined and imperfect archaeological classification schemas and typologies. Therefore, the prehistoric time periods used by archaeologists to describe the southern Imperial County desert region borrow heavily from those chronologies established for San Diego County prehistory, with some minor Colorado Desert-specific clarifications. The three general time periods accepted in the region are the San Dieguito Complex, the Archaic period, and the Late Prehistoric period. These periods are briefly described below.

The earliest recognized occupation of the region, dating to 10,000-8,000 years before present (B.P.), is known as the San Dieguito complex (Rogers 1939, 1945). Assemblages from this occupation generally consist of flaked stone tools. Evidence of milling activities is rare for sites dating to this period. It is generally agreed

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that the San Dieguito complex shows characteristics of the Western Pluvial Lakes Tradition (WPLT), which was widespread in California during the early Holocene. The WPLT assemblage generally includes scrapers, choppers and bifacial knives. Archaeologists theorize this toolkit composition likely reflects a generalized hunting and gathering society (Moratto 1984; Moratto et al. 1994, Schaeffer and Laylander 2007).

The following period, the Archaic (8,500-1,300 B.P.), is traditionally seen as encompassing both coastal and inland adaptations, with the coastal Archaic represented by the shell middens of the La Jolla complex and the inland Archaic represented by the Pauma complex (True 1980). Coastal settlement is also thought to have been significantly affected by the stabilization of sea levels around 4,000 years ago that led to a general decline in the productivity of coastal ecosystems. Artifacts associated with this period include milling stones, unshaped manos, flaked cobble tools, Pinto-like and Elko projectile points, and flexed inhumations (Schaefer and Laylander 2007). Colorado Desert rock art studies have led researchers to suggest Archaic Period origins for many petroglyph and pictograph styles and elements common in later times (Whitley 2005). More recently, several important late Archaic period sites have been documented in the northern Coachella Valley, consisting of deeply buried middens with clay-lined features and living surfaces, cremations, hearths and rock shelters. Faunal assemblages show a high percentage of lagomorphs (rabbits and hares). The larger sites suggest a more sustained settlement type than previously known for the Archaic period in this area (Schaefer and Laylander 2007).

The Late Prehistoric period (1,300-200 B.P.) is marked by the appearance of small projectile points indicating the use of the bow and arrow, the common use of ceramics, and the general replacement of inhumations with cremations, all characteristic of the San Luis Rey complex as defined by Meighan (1954). The San Luis Rey complex is divided temporally into San Luis Rey I and San Luis Rey II, with the latter distinguished mainly by the addition of ceramics. Along the coast of northern San Diego County, deposits containing significant amounts of Donax shell are now often assigned to the Late Prehistoric, based on a well-documented increase in the use of this resource at this time (e.g., Byrd and Reddy 1999). The inception of the San Luis Rey complex is suggested by True (1966; True et al. 1974) to mark the arrival of Takic speakers from regions farther inland. Waugh (1986) is in general agreement with True but suggests that the migration was probably sporadic and took place over a considerable period. Titus (1987) cites burials showing physical differences between pre- and post-1,300 B.P. remains to further support this contention. However, some researchers have suggested that these Shoshonean groups may have arrived considerably earlier, perhaps as early as 4,000 years ago. Vellanoweth and Altschul (2002:102-105) provide an excellent summary of the various avenues of thought on the Shoshonean Incursion.

3.3 HISTORY

The first significant European settlement of California began during the Spanish Period (1769 to 1821) when 21 missions and four presidios were established between San Diego and Sonoma. Although located primarily along the coast, the missions dominated economic and political life over the greater California region. The purpose of the missions was primarily for political control and forced assimilation of the Native American population into Spanish society and Catholicism, along with economic support to the presidios (Castillo 1978).

In the 1700s, due to pressures from other colonizers (Russians, French, British), New Spain decided that a party should be sent north with the idea of founding both military presidios and religious missions in Alta California to secure Spain's hold on its lands. The aim of the party was twofold. The first was the establishment of presidios, which would give Spain a military presence within its lands. The second was the establishment of a chain of missions along the coast slightly inland, with the aim of Christianizing the native population. By

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converting the native Californians, they could be counted as Spanish subjects, thereby bolstering the colonial population within a relatively short time (Lech 2012: 3-4).

The party was led by Gaspar de Portolá and consisted of two groups; one would take an overland route, and one would go by sea. All parties were to converge on San Diego, which would be the starting point for the chain of Spanish colonies. What became known as the Portolá Expedition set out on March 24, 1769. Portolá, who was very loyal to the crown and understood the gravity of his charge, arrived in what would become San Diego on July 1, 1769. Here, he immediately founded the presidio of San Diego. Leaving one group in the southern part of Alta California, Portolá took a smaller group and began heading north to his ultimate destination of Monterey Bay. Continuing up the coast, Portolá established Monterey Bay as a Spanish possession on June 3, 1770, although it would take two expeditions to accomplish this task. Having established the presidios at San Diego and Monterey, Portolá returned to Mexico. During the first four years of Spanish presence in Alta California, Father Junípero Serra, a member of the Portolá expedition and the Catholic leader of the new province, began establishing what would become a chain of 21 coastal missions in California. The first, founded concurrently at San Diego with the presidio, was the launching point for this group. During this time, four additional missions (San Carlos Borromeo de Carmelo, San Antonio de Padua, San Gabriel Arcángel, and San Luis Obispo de Tolosa) were established (Lech 2012: 1-4).

The Mexican Period (1821-1848) began with the success of the Mexican Revolution in 1821, but changes to the mission system were slow to follow. When secularization of the missions occurred in the 1830s, their vast land holdings in California were divided into large land grants called ranchos. The Mexican government granted ranchos throughout California to Spanish and Hispanic soldiers and settlers (Castillo 1978; Cleland 1941). Even after the decree of secularization was issued in 1833 by the Mexican Congress, missionaries continued to operate a small diocesan church. In 1834, the San Gabriel Mission, including over 16,000 head of cattle, was turned over to the civil administrator.

In 1848, The Treaty of Guadalupe Hidalgo ended the Mexican-American War and marked the beginning of the American Period (1848 to present). The discovery of gold that same year sparked the 1849 California Gold Rush, bringing thousands of miners and other new immigrants to California from various parts of the United States, most of whom settled in the north. For those settlers who chose to come to southern California, much of their economic prosperity was fueled by cattle ranching rather than by gold. This prosperity, however, came to a halt in the 1860s because of severe floods and droughts, as well as legal disputes over land boundaries, which put many ranchos into bankruptcy.

Imperial County was formed in 1907 from a portion of San Diego County known as Imperial Valley and is the newest of California's counties. It is known for being one of California's most prosperous agricultural communities because of its vast canal systems stemming from the Colorado River. The first diversion of the Colorado River was in 1905 and continued through 1942 when the All-American Canal was completed. It is this water, conveyed from the Colorado River, that makes Imperial County so rich (Hoover et al. 2002).

The community of Heber was founded in 1903 by the Imperial Land Company working under the direction of the direction of the California Development Company. The community of Heber was named after the President of the California Development Company, A.H. Heber. The initial rapid growth of the community began because of the anticipated construction of the San Diego Yuma railroad in the early 1900's. Unfortunately, the growth of Heber slowed greatly as El Centro was designated the regional center. Heber's continued presence is because of its importance of agricultural. Today, the community of Heber encompasses approximately 9 square miles and has a population of a little over 4,000 people (Heber Public Utility District 2019).

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SECTION 4.0 – SOURCES CONSULTED

A records search dated July 18, 2019, was obtained from the South Coastal Information Center (SCIC) at San Diego State University (Appendix A). The records search provided information on all documented cultural resources and previous archaeological investigations within 0.5-mile of the project area. Resources consulted during the records search conducted by the SCIC included the National Register of Historic Places (NRHP), California Historical Landmarks, California Points of Historical Interest, and the California State Historic Resources Inventory. Results of the records search and additional research are detailed below.

4.1 REPORTS WITHIN THE STUDY AREA

Based upon the records search conducted by the SCIC, 22 cultural resource studies have previously been completed within the 0.5-mile records search radius. Of the 22 previous studies, 12 of these studies were within the current project area and are in italics. Please see the following table for further details.

Table 1: Previous Cultural Resources Studies within the Study Area

Report Number	Year	Author	Title	Resources
IM-00063	1976	Von Werlhof, Jay and Shrilee Von Wherlhof	ARCHAEOLOGICAL EXAMINATION OF A PROPOSED GEOTHERMAL TESTING SITE NEAR HEBER, CALIFORNIA	N/A
IM-00066	1976	Von Werlhof, Jay and Shrilee Von Wherlhof	ARCHAEOLOGICAL RECORD SEARCH OF THE HEBER, CALIFORNIA, REGION	N/A
IM-00115	1977	Von Werlhof, Jay and Shrilee Von Wherlhof	ARCHAEOLOGICAL EXAMINATION OF THE HEBER ANOMOLY REPORT PREPARED FOR VTN CONSOLIDATED, INC.	N/A
IM-00123	1977	VTN Consolidated, Inc.	DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE HEBER GEOTHERMAL DEMONSTRATION PROJECT	N/A
IM-00185	*1979*	*Von Werlhof, Jay, and George E. Collins*	*ARCHAEOLOGICAL EXAMINATIONS OF PROPOSED GEOTHERMAL FACILITIES NEAR HEBER, CA*	*N/A*
IM-00192	1979	VTN Consolidated, Inc.	DRAFT MASTER ENVIRONMENTAL IMPACT REPORT FOR A 500-MEGAWATT GEOTHERMAL DEVELOPMENT AT HEBER, IMPERIAL COUNTY, CALIFORNIA	N/A
IMP-00199	*1979*	*Walker, Carol, Charles Bull, and Jay Von Werlhof*	*CULTURAL RESOURCE STUDY OF A PROPOSED ELECTRIC TRANSMISSION LINE FROM JADE TO THE SAND HILLS,*	*N/A*

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Table 1: Previous Cultural Resources Studies within the Study Area

Report Number	Year	Author	Title	Resources
			IMPERIAL COUNTY, CALIFORNIA	
IM-00233	*1981*	*Walker, Carol, Charles Bull, and Jay Von Werlhof*	*CULTURAL RESOURCE STUDY OF A PROPOSED ELECTRIC TRANSMISSION LINE FROM JADE TO THE SAND HILLS, IMPERIAL COUNTY, CALIFORNIA*	*N/A*
IM-00235	*1981*	*Bureau of Land Management*	*APS/SDG&E INTERCONNECTION PROJECT - SUPPLEMENT TO THE DRAFT ENVIRONMENTAL DOCUMENT*	*N/A*
IM-00272	1982	Sanchez, Michael	DRAFT ENVIRONMENTAL IMPACT REPORT - CURRENT LAND USE PLAN, HEBER PLANNING UNIT	N/A
IM-00301	*1983*	*Welch, Patrick*	*CULTURAL RESOURCE INVENTORY FOR THIRTY PROPOSED ASSET MANAGEMENT PARCELS IN IMPERIAL COUNTY, CALIFORNIA*	*N/A*
IM-00368	1987	Imperial County Planning Department	CHEVRON GEOTHERMAL COMPANY OF CALIFORNIA SUPPLEMENTAL PROJECT INFORMATION FOR THE AUXILIARY PRODUCTION FACILITY HEBER GEOTHERMAL UNIT, IMPERIAL COUNTY	N/A
IM-00536	*1979*	*Burkenroad, David*	*PHASE ONE REGIONAL STUDIES APS/SDG&E INTERCONNECTION PROJECT TRANSMISSION SYSTEM ENVIRONMENTAL STUDY CULTURAL RESOURCES: HISTORY*	*N/A*
IM-00537	*1979*	*Wirth Associates, Inc.*	*PHASE ONE REGIONAL STUDIES APS/SDG&E INTERCONNECTION PROJECT TRANSMISSION SYSTEM ENVIRONMENTAL STUDY CULTURAL RESOURCES: ARCHAEOLOGY*	*N/A*
IM-00538	*1979*	*Imperial County*	*PROPOSED WORKSCOPE PHASE II CULTURAL RESOURCES STUDIES APSSDG& E TRANSMISSION INTERCONNECT PROJECT, MIGUEL TO SAND HILLS, SAND HILLS TO PVNGS*	*N/A*
IMP-00547	*1982*	*Cultural Systems Research, Inc. (CSRI)*	*DRAFT ARCHAEOLOGICAL RESEARCH DESIGN AND DATA RECOVERY*	*N/A*

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Table 1: Previous Cultural Resources Studies within the Study Area

Report Number	Year	Author	Title	Resources
			PROGRAM FOR CULTURAL RESOURCES WITHIN THE MOUNTAIN SPRINGS (JADE) TO SAND HILLS PORTION OF THE APS/SDG&E INTERCONNECTION PROJECT 500KV TRANSMISSION LINE	
IMP-00595	*1982*	*CSRI*	*MOUNTAIN SPRINGS (JADE) TO SAND HILLS DATA RECOVERY PRELIMINARY REPORT*	*N/A*
IMP-01101	2007	BRG Consulting, Inc.	ENVIRONMENTAL INITIAL STUDY - UNIFORM APPLICATIONS NO. 2006-14, III CALEXICO PLACE	N/A
IMP-01135	*2006*	*HDR*	*INITIAL STUDY / MITIGATED NEGATIVE DECLARATION - TOWNCENTER INDUSTRIAL PLAZA, CALEXICO, CALIFORNIA*	*N/A*
IMP-01253	2008	BRG Consulting, Inc.	DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE 111 CALEXICO PLACE SPECIFIC PLAN	N/A
IMP-01306	*1980*	*Wirth Associates, Inc*	*APS/SDG&E INTERCONNECTION PROJECT ENVIRONMENTAL STUDY PHASE II CORRIDOR STUDIES - NATIVE AMERICAN CULTURAL RESOURCES APPENDICES*	*N/A*
IMP-01313	*1980*	*Wirth Associates, Inc*	*APS/SDG&E INTERCONNECTION PROJECT (PHASE II CORRIDOR STUDIES) - CULTURAL RESOURCES: ARCHAEOLOGY*	*N/A*

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4.2 PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN THE STUDY AREA

Based upon the records search conducted by the SCIC, one previously recorded cultural resource (Niland to Calexico Railroad) was recorded within the 0.5-mile records search radius and is not located within the project area.

Table 2: Previously Recorded Cultural Resources within the Study Area

Primary Number	Trinomial	Resource Name	Site Description
P-13-008682	CA-IMP-8166H	Niland to Calexico Railroad	Historic Site

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SECTION 5.0 – NATIVE AMERICAN HERITAGE COMMISSION SACRED LAND FILE SEARCH

On June 27, 2019, Chambers Group requested that the Native American Heritage Commission (NAHC) conduct a search of its Sacred Lands File to determine if cultural resources significant to Native Americans have been recorded in the project footprint and/or buffer area. On July 8, 2019, Chambers Group received a response from NAHC stating that the search of its Sacred Lands File did not indicate the presence of Native American cultural resources within 0.5 mile of the project area or surrounding vicinity. The NAHC provided a list of ten Native American tribal governments that may have knowledge of cultural resources near the project area. The Native American tribes identified by the NAHC included the Campo Band of Diegueno Mission Indians, Ewiiaapaayp Band of Kumeyaay Indians, Jamul Indian Village, Kwaaymii Laguna Band of Mission Indians, La Posta Band of Dieguno Mission Indians, Manzanita Band of Kumeyaay Nation, Sycuan Band of Kumeyaay Nation and Veijas Band of Kumeyaay Indians. Because Imperial County is leading the Assembly Bill (AB) 52 consultation process, Chambers Group did not send consultation letters to the ten affiliated tribes (Appendix B).

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SECTION 6.0 – FIELD METHODS

Chambers Group survey teams are trained in established field methods for cultural resources deemed appropriate for each project. Cultural materials encountered may include prehistoric artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools), historic-period artifacts (e.g., metal, glass, ceramics), sediment discoloration that might indicate the presence of a cultural midden, as well as depressions and other features indicative of the former presence of structures or buildings (e.g., post holes, foundations).

On July 2, 2019, Chambers Group archaeologist Lauren DeOliveira, completed a reconnaissance level survey of the 20-acre project area. A reconnaissance level survey was sufficient and employed in the current project because the project area is highly disturbed and includes an existing geothermal facility, making an intensive pedestrian survey unnecessary.

The archaeologist examined exposed ground surface for artifacts (e.g., flaked stone tools, tool-making debris, milling tools, ceramics), ecofacts (e.g., marine shell and bone), soil discoloration that might indicate the presence of a cultural midden, and features indicative of the former presence of structures or buildings (e.g., standing exterior walls, postholes, foundations) or historic debris (e.g., metal, glass, ceramics). Ground disturbances such as burrows were visually inspected for both cultural resources and paleontological resources.

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SECTION 7.0 – RESULTS OF ARCHAEOLOGICAL SURVEY

The project area is located within the Community of Heber, Imperial County, California. The 20-acre project area is located at 895 Pitzer Road immediately northwest of the intersection of Pitzer Road and Jasper Road, west of CA-111. The project area encompasses the existing Heber 1 Geothermal Facility. The project area is completely disturbed and highly developed, including asphalt driveways and parking areas, piping systems, steam systems, a substation and administration buildings. Overall ground visibility was moderate (70%). Water retention ponds were present on the southern portion of project area and presented some limitations to ground surface visibility. Modern debris such as rubber and wood were observed. Modern bovine and avian bones were observed mostly on the west side of the project area.

No historic or prehistoric resources were identified as a result of the field survey indicating the low likelihood of encountering previously unrecorded resources.

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SECTION 8.0 – SUMMARY AND RECOMMENDATIONS

Chambers Group conducted archaeological investigations within the project area located at 895 Pitzer Road immediately northwest of the intersection of Pitzer Road and Jasper Road, west of CA-111 in July 2019. The work was performed under Chambers Group's contract with Ormat Nevada, Inc. The main goal of the archaeological investigations was to gather and analyze information needed to determine if the project would impact cultural resources.

An archival records search, background studies, and reconnaissance survey of the project area were conducted as part of a Phase I cultural resource study. The cultural record search identified 12 cultural resource studies have occurred within the project area and none of these previous efforts resulted in the identification of cultural resources.

Because no cultural resources were identified within the project area as a result of the record search or the reconnaissance survey, no impacts are expected to occur as part of the proposed project and no further cultural resources work is recommended.

In the event of an unanticipated discovery, the following guidelines are recommended.

If unanticipated cultural resources are encountered during ground-disturbing activities, a qualified archaeologist shall be contacted to assess the significance of the find. In the case that previously undiscovered resources are identified during construction activities, excavations within 50 feet of the find shall be temporarily halted or diverted. If the qualified archaeologist determines the find to be significant, construction activities can resume after the find is assessed and mitigated accordingly.

If the discovery of human remains occurs during ground-disturbing activities, the following regulations must be followed. California State law (California Health and Safety Code 7050.5) and federal law and regulations (Archaeological Resources Protection Act [ARPA], 16 United States Code [U.S.C.] 470 and 43 Code of Federal Regulations, [CFR] 7, Native American Graves Protection and Repatriation Act [NAGPRA] 25 U.S.C. 3001 and 43 CFR 10, and Public Lands, Interior 43 CFR 8365.1-7) require a defined protocol if human remains are discovered in the state of California regardless if the remains are modern or archaeological. Upon discovery of human remains, all work within a minimum of 200 feet of the remains must cease immediately, and the County Coroner must be notified. The appropriate land manager/owner or the site shall also be notified of the discovery. If the remains are located on federal lands, the federal land manager(s), federal law enforcement, and/or federal archaeologist should also be notified. If the human remains are determined by the Coroner to be prehistoric, the appropriate federal archaeologist must be called. The archaeologist will initiate the proper procedures under ARPA and/or NAGPRA. If the remains can be determined to be Native American, the steps as outlined in NAGPRA 43 CFR 10.6 *Inadvertent Discoveries* must be followed

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Figure 2: Overview of project area. Looking southeast.



Figure 3: Overview of project area from the east side. Looking southwest.

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Figure 4: Overview of project area from east side. Looking northwest.

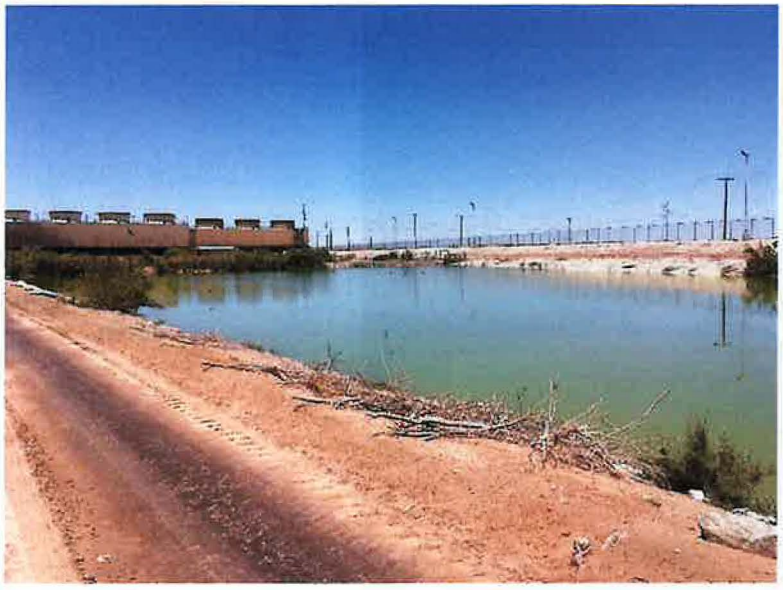

Figure 5: Overview of project area from south side. Looking north.

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Figure 6: Overview of project area. Looking south.



Figure 7: Overview of project area. Looking north.

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SECTION 9.0 – REFERENCES

Bean, Lowell John, and Florence C. Shipek

1978 Luiseno. In *Handbook of North American Indians, Vol. 8, California*. Edited by R.F. Heizer. W.C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C: 550-564.

Byrd, Brian F., and Seetha N. Reddy

1999 Collecting and Residing near the Shore: The Role of Small and Large Sites in Settlement Reconstruction. *Pacific Coast Archaeological Society Quarterly* 35(1):33-56.

Castillo, Edward D.

1978 The Impact of Euro-American Exploration and Settlement. In *Handbook of North American Indians, Volume 8, California,* edited by R.F. Heizer, pp. 99-127. William C. Sturtevant, general editor. Smithsonian Institution, Washington D.C.

Cleland, Robert G.

1941 *The Cattle on a Thousand Hills: Southern California, 1850-1870*. Huntington Library, San Marino, California.

Garrison, Arlean

1963 My Children's Home-A History of Murrieta, California. By the Author 1963.

Gifford, Edward W.

1931 The Kamia of Imperial Valley. *Bureau of American Ethnology Bulletin No. 97*. U.S. Government Printing Office, Washington, D.C

Gray-Kanatiiosh, Barbara A

2007 *Kumeyaay*. ABDO Publishing Company, Minnesota.

Heber Public Utility District

2019 *Heber History.* http://www.heber.ca.gov/content/heber-history . Accessed July 18, 2019.

Heusser, L.E.

1998 Direct correlation of Millennial-Scale Changes in Western North American Vegetation and Climate with Changes in the California Current System over the Past ~60kyr. *Paleoceanography* 13:252-262.

Hoover, M.B., H.E. Rensch, E.G. Rensch, and W.N Abeloe

2002 *Historic Spots in California.* Revised by Douglas E. Kyle. Stanford University Press. Stanford, California. 4th Edition.

Kroeber, Alfred L.

1925 *Handbook of the Indians of California*. Bureau of American Ethnology Bulletin 78. Smithsonian Institution, Washington, D. C.

Lech, S.

2012 *Pioneers of Riverside County: The Spanish, Mexican and Early American Periods*. Arcadia Publishing: 1-19.

EEC ORIGINAL PKG

Luomala, Katherine

1978 Tipai-Ipai. In *Handbook of North American Indians*, Volume 8, California. Edited by Robert F. Heizer, pp. 592-609. W.C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Meighan, Clement

1954 A Late Complex in Southern California Prehistory. *The Southwestern Journal of Anthropology* 10:215-227.

Moratto, Michael J.

1984 *California Archaeology*. Academic Press, Inc., New York.

Moratto, M., A. Schroth, J. M. Foster, D. Gallegos, R. S. Greenwood, G. R. Romani, M. C. Romano, L.H Shoup, M.T Swanson, and E.C Gibson

1994 Archaeological Investigation at Five Sites on the Lower San Luis Rey River, San Diego County, California. *Journal of California and Great Basin Anthropology*. 23(1):179-214.

Office of Historic Preservation (OHP)

1995 *Instructions for Recording Historical Resources: Introduction*. California Department of Transportation with the California Office of Historic Preservation, Sacramento: 2.

Park, Lisa E., and Kevin Downing

2001 Paleoecology of an exceptionally preserved arthropod fauna from lake deposits of the Miocene Barstow Formation, Southern California, USA. *Palaios*, *16*(2), 181-182.

Pritzker, Barry M.

2000 "Tipai-Ipai" in *A Native American Encyclopedia: History, Culture, and Peoples*, Oxford: Oxford University Press

Reynolds, R.E. and Reynolds R.L

1991 The Pleistocene Beneath our Feet: Near-surface Pleistocene Fossils from Inland Southern California Basins. San Bernardino County Museum Association Quarterly V. 38(3 & 4), p. 41–43.

Rogers, Malcolm J.

1939 *Early Lithic Industries of the Lower Basin of the Colorado and Adjacent Desert Regions*. San Diego Museum Papers, No. 3. 1945 An Outline of Yuman Prehistory. Southwestern Journal of Anthropology. 1(1):167-198.

Schaefer, J. and D. Laylander.

2007 The Colorado Desert: Ancient Adaptations to Wetlands and Wastelands. In *California Prehistory: Colinization, Culture, and Complexity*. Edited by T.L. Jones and K.A. Klar, pp. 247-258. AltaMira Press, New York.

Shipek, Florence

1972 Table of Tipai-Ipai population. Included on p. 596 of Luomala, Katherine (1978), Tipai-Ipai. In *Handbook of North American Indians*, Volume 8, California. Edited by Robert F. Heizer, pp. 592-609. W.C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

EEC ORIGINAL PKG

True, D. L.
1966 Archaeological Differentiation of Shoshonean and Yuman Speaking Groups in Southern California. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Los Angeles.

1980. The Pauma Complex in Northern San Diego County: 1978. *Journal of New World Archaeology* 3(4):1-39.

True, D.L., C.W. Meighan, and Harvey Crew
1974 Archaeological Investigations at Molpa, San Diego County, California. University of California Publications in Anthropology 11, Berkeley.

Titus, M. D.
1987 Evidence for Prehistoric Occupation of Sites on San Clemente Island by Hokan and Uto-Aztecan Indians. Unpublished master's thesis, Department of Anthropology, University of California, Los Angeles.

Vellanoweth, Rene L., and Jeffrey H. Altschul
2002 Antiquarians, Cultural Historians, and Scientists: *The Archaeology of the Bight. In Islanders and Mainlanders*: Prehistoric Context for the Southern California Bight, edited by Jeffery H. Altschul and Donn R. Grenda, pp. 85-112. SRI Press, Tucson.

Waugh, M. G.
1986 *Intensification and Land-Use: Archaeological Indication of Transition and Transformation in a Late Prehistoric Complex in Southern California*. Ph.D. dissertation, University of California, Davis. University Microfilms, Ann Arbor, Michigan.

Wallace, William
1978 Post Pleistocene Archaeology, 9000 to 2000 B.C. In *Handbook of North American Indians Volume 8*:26-36. Smithsonian Institution, Washington, D.C.

Whitley, David S.
2005 Introduction to Rock Art Research. Left Coast Press, Walnut Creek, California.

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APPENDIX A –CULTURAL RECORDS SEARCH RESULTS

South Coastal Information Center
San Diego State University
5500 Campanile Drive
San Diego, CA 92182-5320
Office: (619) 594-5682
www.scic.org
nick@scic.org

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM RECORDS SEARCH

Company: Chambers Group

Company Representative: Lauren DeOliveira

Date Processed: 7/18/2019

Project Identification: Herber 1 Expansion-Herber Property

Search Radius: 1/2 mile

Historical Resources: YES

Trinomial and Primary site maps have been reviewed. All sites within the project boundaries and the specified radius of the project area have been plotted. Copies of the site record forms have been included for all recorded sites.

Previous Survey Report Boundaries: YES

Project boundary maps have been reviewed. National Archaeological Database (NADB) citations for reports within the project boundaries and within the specified radius of the project area have been included.

Historic Addresses: YES

A map and database of historic properties (formerly Geofinder) has been included.

Historic Maps: YES

The historic maps on file at the South Coastal Information Center have been reviewed, and copies have been included.

Summary of SHRC Approved CHRIS IC Records Search Elements	
RSID:	2630
RUSH:	yes
Hours:	1
Spatial Features:	23
Address-Mapped Shapes:	no
Digital Database Records:	0
Quads:	1
Aerial Photos:	0
PDFs:	Yes
PDF Pages:	43

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APPENDIX B – NAHC SACRED LAND FILE SEARCH RESULTS

Native American Heritage Commission
Native American Contacts List
7/08/2019

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This list is current as of the date of this document and is based on the information available to the Commission on the date it was produced.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code,Section 5097.94 of the Public Resources Code, or Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans Tribes for the proposed: 21172 Herber 1 Expansion-Herber Property, Imperial County.

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APPENDIX D – PALEONTOLOGICAL REPORT

CHAMBERS GROUP

Note to the Reader

On December 17th, 2019 ORMAT Nevada Inc. (ORMAT) submitted an application to the County of Imperial Planning & Development Services Department to amend Conditional Use Permit (CUP) No. 15-0013 for the Heber 1 geothermal facility in Imperial County, CA. The amendment proposed a Repower Project which would take the existing dual-flash steam turbine generator out of service and install two new OEC geothermal power generation units to increase performance of the facility (Project). The Project also included installation of new equipment including six 10,000-gallon isopentane storage tanks and an evacuation skid/vapor recovery maintenance unit. Based on close coordination with the County of Imperial ORMAT has decided to reduce the number of 10,000 gallon isopentane tanks on the Heber 1 site from six tanks to two tanks. While these revisions are not reflected in the text of the following technical report, it does not materially change any of the impact assessments or technical conclusions within the report.

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PALEONTOLOGICAL REPORT FOR THE HEBER I REPOWER PROJECT IMPERIAL COUNTY, CALIFORNIA

Prepared for:

Ormat Nevada, Inc
Melissa Wendt
6140 Plumas St.
Reno, NV 89519

Prepared by:

CHAMBERS GROUP, INC.
Kyle Knabb, PhD, RPA
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5 Hutton Centre Drive, Suite 750
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(949) 261-5414

September 4, 2019

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SECTION 1.0 – MANAGEMENT SUMMARY

Purpose and Scope

Chambers Group was retained by Ormat Nevada, Inc. to provide paleontological resource services for the Heber I Repower Project located in Imperial County, California. The scope of services included (1) a paleontological resources literature review, (2) a museum records search, and (3) the preparation of this technical report of findings and recommended mitigation measures.

Dates of Investigation

The museum records search was performed on July 16, 2019. This technical report was completed in July 2019.

Results of the Investigation

According to geological mapping by Dibblee and Minch (2008), the Heber I Repower Project area is underlain by the Lake Cahuilla Beds (late Pleistocene to Holocene). Museum collection records maintained by the San Diego Natural History Museum (SDNHM) indicate that no fossil localities have been recorded within a one-mile radius of the study area (San Diego Natural History Museum 2019).

The results of the literature review indicate that the geological unit underlying the project area has high paleontological sensitivity. That is, the current project area contains an above average potential for paleontological resources. Therefore, any project-related ground disturbances may result in an adverse impact to non-renewable fossil resources unless proper mitigation measures are implemented.

Recommendations

Chambers Group recommends that a qualified paleontologist be retained to design and implement a paleontological resource mitigation plan during any ground disturbing activities related to the proposed development within the project area. All fossils recovered during the paleontological monitoring and mitigation program should be prepared, stabilized, identified, and permanently curated in an approved repository or museum (such as the SDNHM).

Disposition of Data

This report will be filed with Ormat Nevada, Inc. A copy will be retained at Chambers Group along with maps and all other records relating to the project.

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SECTION 2.0 – INTRODUCTION

This report presents the findings of a paleontological literature review and museum records search conducted for the Heber I Repower Project located in Imperial County, California. This study evaluates the paleontological sensitivity of the project area and vicinity, assesses potential project related impacts on paleontological resources, and provides recommendations for project specific mitigation measures. This study was conducted in accordance with the professional guidelines established by the Society of Vertebrate Paleontology (SVP) (2010).

2.1 DEFINITION AND SIGNIFICANCE OF PALEONTOLOGICAL RESOURCES

Paleontology is a multidisciplinary science that combines elements of geology, biology, chemistry and physics to understand the history of life on Earth. Paleontological resources, or fossils, are the remains, imprints or traces of once-living organisms preserved in sedimentary rocks. Fossils include mineralized, partially mineralized, or unmineralized bones and teeth, soft tissues, shells, wood, leaf impressions, footprints, burrows, and microscopic remains. The fossil record is the only direct evidence that life on Earth has existed for more than 3.6 billion years. Fossils are considered non-renewable resources because the organisms they represent no longer exist. Thus, once destroyed, a fossil can never be replaced. Fossils are important scientific and educational resources because they are utilized to:

- Study the evolutionary relationships between extinct organisms, as well as their relationships to modern groups.
- Elucidate the taphonomic, behavioral, temporal and diagenetic pathways responsible for fossil preservation, including the biases inherent in the fossil record.
- Reconstruct ancient environments, climate change, and paleoecological relationships.
- Provide a measure of relative geologic dating which forms the basis for biochronology and biostratigraphy, and which is an independent and corroborating line of evidence for radiometric dating.
- Study the geographic distribution of organisms and tectonic movements of land masses and ocean basins through time.
- Study patterns and processes of evolution, extinction and speciation.
- Identify past and potential future human-caused effects to global environments and climates.

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SECTION 3.0 – PROJECT DESCRIPTION

3.1 PROJECT DESCRIPTION

Chambers Group has been contracted by Ormat Nevada, Inc. to complete a paleontological literature review and museum records search along with an intensive cultural resources pedestrian survey of the entire 20-acre project area. The proposed project will include the replacement of the steam turbine and bottoming units with an integrated three- level unit, new air-cooled converter, new brine feed exchangers along with feed pumps, and a portion of the piping systems. The project is proposed within 20 acres of the existing Heber 1 geothermal facility located at 895 Pitzer Road, Imperial County, California.

The purpose of this investigation is to assess the potential for significant paleontological deposits and/or materials within the proposed project area.

3.2 PROJECT LOCATION

The project is located at 895 Pitzer Road within the Community of Heber, Imperial County, California. The 20-acre project area is located immediately northwest of the intersection of Pitzer Road and Jasper Road, west of CA-111. Specifically, the proposed project is located on the Heber 7.5-min quadrangle, Section 34, in Township 16 South, Range 14. Regional access to the project area is provided via CA Route 111 in Imperial County, California.

The project area encompasses the existing Heber 1 Geothermal Facility and retention ponds (Figure 1). The reconnaissance survey encompassed the entire project.

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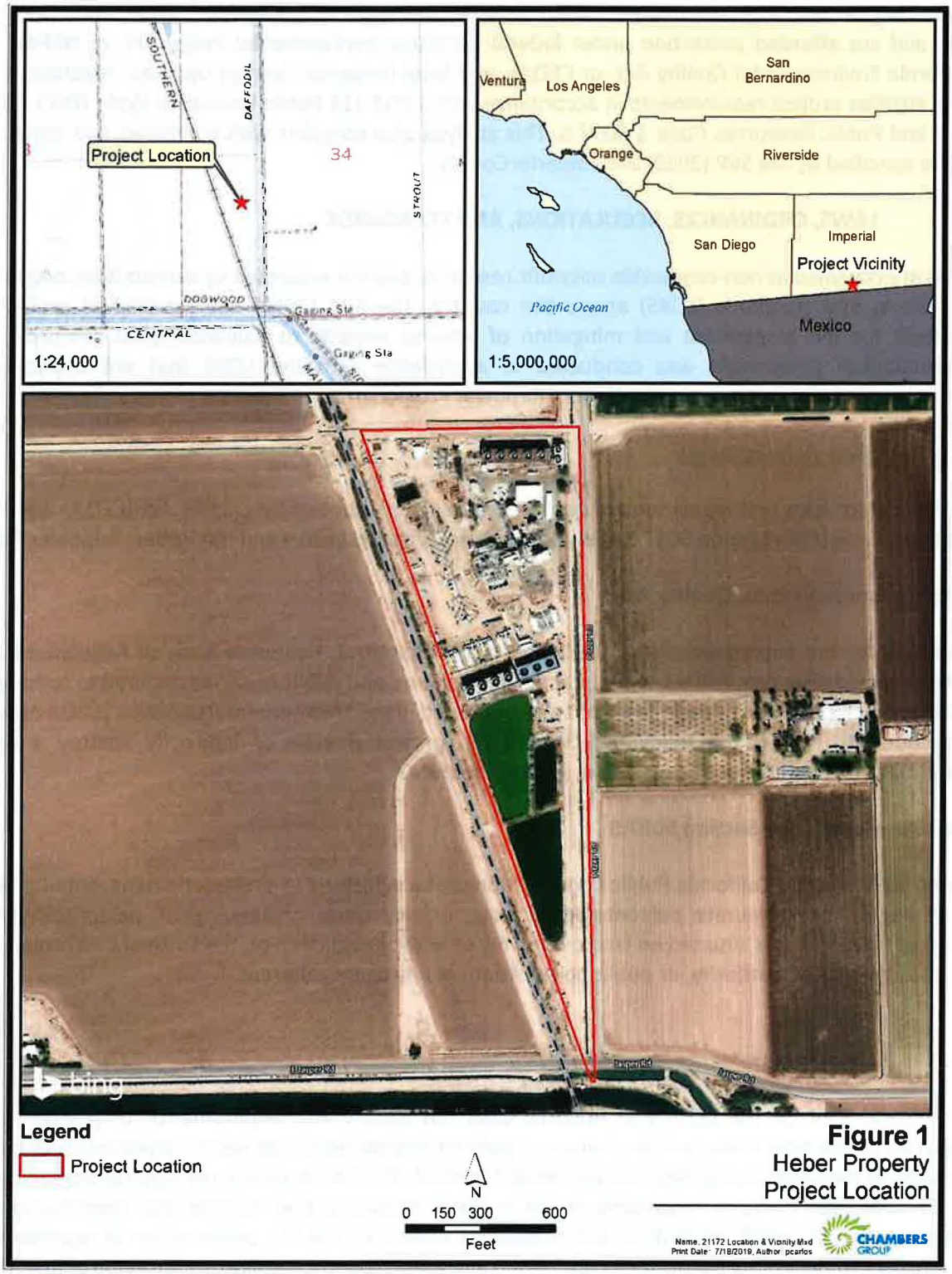
Figure 1: Project Location



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SECTION 4.0 – RESOURCE ASSESSMENT GUIDELINES

Paleontological resources are limited, non-renewable resources of scientific, cultural, and educational value and are afforded protection under federal (National Environmental Policy Act, or NEPA), state (California Environmental Quality Act, or CEQA), and local (Imperial County) laws and regulations. This study satisfies project requirements in accordance with CEQA (13 Public Resources Code [PRC] 2100 et seq.)) and Public Resources Code § 5097.5. This analysis also complies with guidelines and significance criteria specified by the SVP (2010) and Imperial County.

4.1 LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

Fossils are classified as non-renewable scientific resources and are protected by various laws, ordinances, regulations, and standards (LORS) across the country. The SVP (2010) has established professional standards for the assessment and mitigation of adverse impacts to paleontological resources. This paleontological assessment was conducted in accordance with the LORS that are applicable to paleontological resources within the Heber I Repower Project area.

4.1.1 State Requirements

California state laws and regulations under the California Environmental Quality Act (CEQA) and Public Resources Code (PRC) Section 5097.5 apply to paleontological resources and the Heber I Repower Project.

California Environmental Quality Act

Guidelines for the Implementation of CEQA (Title 14, Chapter 3, California Code of Regulations (CCR) 15000 et seq.) define procedures, types of activities, persons, and public agencies required to comply with CEQA, and include as one of the questions to be answered in the Environmental Checklist (CEQA Appendix G, Section VII, Part f) the following: "Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?"

Public Resources Code Section 5097.5

Section 5097.5 of the California Public Code Section protects historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological sites, or any other archaeological, paleontological, or historical feature that is situated on land owned by, or in the jurisdiction of, the State of California, or any city, county, district, authority, or public corporation, or any agency thereof.

4.1.2 Local Requirements

The General Plan for the County of Imperial does not specify any requirements for paleontological resources. At the time it was written, however, paleontological resources were a subcategory of cultural resources in the CEQA Guidelines Environmental Checklist. The Conservation and Open Space Element of the General Plan contains requirements for cultural resources that involve the identification and documentation of significant historic and prehistoric resources and the preservation of representative and worthy examples. The Conservation and Open Space Element also recognizes the value of historic and

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prehistoric resources and the need to assess current and proposed land uses for impacts upon these resources.

4.1.3 Professional Standards

The SVP has established standard guidelines (SVP 2010) that outline professional protocols and practices for the conducting of paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, and specimen preparation, identification, analysis, and curation. Most state regulatory agencies with paleontological LORS accept and utilize the professional standards set forth by the SVP.

As defined by the SVP (2010:11) significant paleontological resources are defined as:

> *fossils and fossiliferous deposits... consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years).*

Based on the significance definitions of the SVP (2010), all identifiable vertebrate fossils are considered to have significant scientific value because vertebrate fossils are relatively uncommon, and because only rarely will a fossil locality yield a statistically significant number of specimens of the same genus. Therefore, every vertebrate fossil found has the potential to provide significant new information on the taxon it represents, its paleoenvironment, and/or its distribution. Furthermore, all geological units in which vertebrate fossils have previously been found are considered to have high sensitivity. Identifiable plant and invertebrate fossils are considered significant if found in association with vertebrate fossils or if defined as significant by project paleontologists, specialists, or local government agencies.

A geologic unit known to contain significant fossils is considered "sensitive" to adverse impacts if earth moving or ground-disturbing activities in that rock unit could likely disturb or destroy fossil remains directly or indirectly. This definition of sensitivity differs fundamentally from that for archaeological resources as follows:

> *It is extremely important to distinguish between archaeological and paleontological resources when discussing the paleontological potential of rock units. The boundaries of an archaeological resource site define the areal/geographic extent of an archaeological resource, which is generally independent from the rock unit on which it sits. However, paleontological sites indicate that the containing rock unit or formation is fossiliferous. Therefore, the limits of the entire rock unit, both areal and stratigraphic, define the extent of paleontological potential.*

Many archaeological sites contain features that are visually detectable on the surface. In contrast, fossils are contained within surficial sediments or within bedrock, and are therefore not observable or detectable unless exposed by erosion or human activity. In summary, paleontologists cannot know either the quality or quantity of fossils prior to natural erosion or human-caused exposure. As a result, even in the absence of surface fossils, it is necessary to access the sensitivity of rock units based on their known potential to

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produce significant fossils elsewhere within the same geologic unit (both within and outside of the study area), a similar geologic unit, or based on whether the unit in question was deposited in a type of environment that is known to be favorable for fossil preservation. Monitoring by experienced paleontologists greatly increases the probability that fossils will be discovered during ground-disturbing activities and that, if these remains are significant, successful mitigation and salvage efforts may be undertaken to prevent adverse impacts to these resources.

4.1.4 Paleontological Sensitivity

Paleontological sensitivity is defined as the potential for a geologic unit to produce scientifically significant fossils (See above section 4.1.3 for definition of significance). This is determined by rock type, past history of the geologic unit in producing significant fossils, and fossil localities recorded from that unit. Paleontological sensitivity is derived from the known fossil data collected from the entire geologic unit, not just from a specific survey. In its "Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources," the SVP (2010:1-2) defines four categories of paleontological sensitivity for rock units: high, low, undetermined, and no potential:

- **High Potential:** Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered are considered to have a high potential for containing additional significant paleontological resources. Rocks units classified as having high potential for producing paleontological resources include, but are not limited to, sedimentary formations and some volcaniclastic formations (e. g., ashes or tephras), and some low-grade metamorphic rocks which contain significant paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils (e. g., middle Holocene and older, fine-grained fluvial sandstones, argillaceous and carbonate-rich paleosols, cross-bedded point bar sandstones, fine-grained marine sandstones, etc.). Paleontological potential consists of both (a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, plant, or trace fossils and (b) the importance of recovered evidence for new and significant taxonomic, phylogenetic, paleoecologic, taphonomic, biochronologic, or stratigraphic data. Rock units which contain potentially datable organic remains older than late Holocene, including deposits associated with animal nests or middens, and rock units which may contain new vertebrate deposits, traces, or trackways are also classified as having high potential.
- **Low Potential:** Reports in the paleontological literature or field surveys by a qualified professional paleontologist may allow determination that some rock units have low potential for yielding significant fossils. Such rock units will be poorly represented by fossil specimens in institutional collections, or based on general scientific consensus only preserve fossils in rare circumstances and the presence of fossils is the exception not the rule, e. g. basalt flows or Recent colluvium. Rock units with low potential typically will not require impact mitigation measures to protect fossils.
- **Undetermined Potential:** Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment are considered to have undetermined potential. Further study is necessary to determine if these rock units have high or low potential to contain significant paleontological resources. A field survey by a qualified professional paleontologist to specifically determine the paleontological resource potential of these rock units is required before a paleontological resource impact mitigation program can be

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developed. In cases where no subsurface data are available, paleontological potential can sometimes be determined by strategically located excavations into subsurface stratigraphy.

- **No Potential:** Some rock units have no potential to contain significant paleontological resources, for instance high grade metamorphic rocks (such as gneisses and schists) and plutonic igneous rocks (such as granites and diorites). Rock units with no potential require no protection nor impact mitigation measures relative to paleontological resources.

For geologic units with high potential, full-time monitoring is generally recommended during any project-related ground disturbance. For geologic units with low potential, protection or salvage efforts will not generally be required. For geologic units with undetermined potential, field surveys by a qualified vertebrate paleontologist should be conducted to specifically determine the paleontological potential of the rock units present within the study area.

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SECTION 5.0 – METHODS

Due to the nature of the fossil record, paleontologists cannot know either the quality or the quantity of fossils present in a given geologic unit prior to natural erosion or human-caused exposure. Therefore, in the absence of surface fossils, it is necessary to assess the sensitivity of rock units based on their known potential to produce scientifically significant fossils elsewhere within the same geologic unit (both within and outside of the study area) or a unit representative of the same depositional environment.

A detailed review of museum collections was performed by the Department of Paleontology and PaleoServices staff at the SDNHM for the purposes of (1) determining whether there are any known fossil localities in or near the project area, (2) identifying the geologic units present in the project area, and (3) determining the paleontological sensitivity ratings of those geologic units in order to assess potential impacts to nonrenewable paleontological resources.

In addition to the records search, published and unpublished literature and geologic maps were reviewed and mitigation measures specific to this project were developed in accordance with the SVP (2010). A paleontological sensitivity map was created using these findings (See Section 7 below).

No surface fossils were identified during the cultural resources pedestrian survey conducted on July 2, 2019 by Lauren DeOliveira, M.S., RPA.

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SECTION 6.0 – GEOLOGY AND PALEONTOLOGY

6.1 GEOLOGICAL SETTING

The project area lies within the southern portion of the Salton Trough, a northwesterly-trending tectonic basin located between the Peninsular Ranges on the west and the Chocolate Mountains on the east (Dorsey, 2006). The area is characterized by numerous northwest-trending strike-slip faults, including from east to west, the San Andreas, San Jacinto, and Elsinore faults. Roughly 2,000 square miles of the Salton Trough lie below sea level, and in many respects, the area can be considered a landward extension of the Gulf of California. In fact, if it were not for the tremendous volumes of sediment transported by the modern Colorado River and its Pliocene and Pleistocene counterparts, the Gulf of California would extend northward as far as Riverside County. However, during the past five million years as the ancestral and modern-day Colorado River have cut down through the Colorado Plateau carving out the Grand Canyon and carrying the eroded sediment load southward, the river has built a sediment dam—the Colorado River delta – across the Salton Trough from east to west. At various times during the history of the prograding Colorado River delta, the full discharge of the river flowed north, forming a large, inland freshwater lake (actually a succession of ephemeral lakes, see discussion below). Periodic changes in the river's course would divert the flow to the south and into the Gulf of California. Cut off from its freshwater supply, the prehistoric lake would eventually dry up due to evaporation (Figure 2).



Figure 2: Overview of Project Area, facing southeast.

In point of fact, there has not been one, but a succession of ephemeral lakes in the area spanning a period of almost three million years (Kirby et al., 2007). The oldest ephemeral lakes from approximately 2.5 to 1.1 million years ago accumulated extensive deposits of claystone, mudstone, and siltstone that are collectively referred to by geologists as the Borrego Formation (Lutz et al., 2006). A younger succession of ephemeral, freshwater lakes that formed from approximately 1.1 to 0.5 million years ago accumulated thick deposits of fine-grained sediments referred to by geologists as the Brawley Formation (Steely et al., 2009). More recently, including up to late prehistoric times (~450 years ago), a series of ephemeral

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freshwater lakes accumulated sediments that today are exposed extensively across the central portion of the Salton Trough and are referred to by geologists as Lake Cahuilla sediments (see discussion below).

6.2 GEOLOGIC UNITS UNDERLYING THE PROJECT AREA

Published geological reports (e.g., Dibblee & Minch, 2008) covering the Project area indicate that the proposed Project has the potential to impact late Pleistocene- to Holocene-age Lake Cahuilla Beds. These geologic units and their paleontological potential are summarized below. The SDNHM does not have any recorded fossil localities within a half mile of the Project site. The general fossil content of these localities is described below.

6.2.1 Lake Cahuilla Beds

Lake Cahuilla was a former freshwater lake that periodically occupied a major portion of the Salton Trough during late Pleistocene to Holocene time (approximately 37,000 to 240 years ago), depositing sediments that underlie the entire Project site. Generally, Lake Cahuilla sediments consist of an interbedded sequence of both freshwater lacustrine (lake) and fluvial (river/stream) deposits. There are no SDNHM fossil collection localities from these deposits within a half-mile radius of the Project site. Elsewhere in Imperial County, the Lake Cahuilla Beds have yielded well-preserved subfossil remains of freshwater clams and snails (Stearns, 1901) and sparse remains of freshwater fish (Hubbs and Miller 1948). The paleontological resources of the Lake Cahuilla Beds are considered significant because of the paleoclimatic and paleoecological information they can provide (Jefferson, 2006), and these deposits are therefore assigned a high paleontological potential (SVP, 2010).

Recent paleontological mitigation work in Imperial County has resulted in the discovery and recovery of diverse fossil assemblages from exposures of Lake Cahuilla lacustrine and fluvial sediments. During 2009, trenching and slant drilling for the Southern California Gas Line 6914 Loop Imperial Valley Project between Brawley and Calipatria exposed layers of clayey siltstones and fine-grained sandstones to a depth of 40 feet. Fossils recovered from these layers included freshwater mollusks, ostracods, and fish. Some were found as shallow as 5 feet. During the 2009 mass grading operations for the State Route 78/111 Brawley Bypass Project near Brawley exposed over 35 feet of alternating mudstone, siltstone, and fine-grained sandstone of prehistoric Lake Cahuilla. Fossils recovered from these layers included remains of freshwater algae, mollusks, ostracods, and fish.

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SECTION 7.0 – ANALYSIS AND RESULTS

7.1 RESOURCE ASSESSMENT SUMMARY

Geologic mapping by Dibblee and Minch (2008) was consulted to identify the specific geologic units underlying the Heber I Repower Project area. The following table summarizes these units and their known paleontological sensitivity ratings.

Table 1: Geologic Formations in the Project Area

Geologic Formation	Age	Fossils	Paleontological Sensitivity Potential	Monitoring Recommendation
Lake Cahuilla Beds	Late Pleistocene to Holocene	Invertebrates, vertebrates	High	Full-time

7.2 MUSEUM RECORDS SEARCH AND LITERATURE REVIEW

The Department of Paleontology and PaleoServices staff at the SDNHM performed a paleontological records search to locate fossil localities within an in the immediate vicinity of the project area. Museum records indicate that no vertebrate fossil localities have been documented within the study area.

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SECTION 8.0 – RECOMMENDED MITIGATION MEASURES

The destruction of fossils as a result of human-caused ground disturbance has a significant cumulative impact, as it makes biological records of ancient life permanently unavailable for study by scientists. Implementation of proper mitigation measures can, however, reduce the impacts to the paleontological resources to below the level of significance.

The following mitigation measures have been developed in accordance with the SVP (2010) standards and meet the paleontological requirements of CEQA. These mitigation measures have been used throughout California and have been demonstrated to be successful in protecting paleontological resources while allowing timely completion of construction.

A. All project-related ground disturbances that could potential impact the Lake Cahuilla Beds will be monitored by a qualified paleontological monitor on a full-time basis, as these geologic units are determined to have a high paleontological sensitivity. It is anticipated that much of the proposed project site would be covered with up to eight feet of previously filled land.
B. A qualified paleontologist will be retained to supervise monitoring of construction excavations and to produce a Paleontological Monitoring and Mitigation Plan for the proposed project, which would include the identification of undisturbed locations of Lake Cahuilla Beds throughout the proposed project site. The plan should also identify areas to be spot checked where ground disturbance could exceed the depth of previously filled land. Paleontological resource monitoring will include inspection of exposed rock units during active excavations within sensitive geologic sediments. The monitor will have authority to temporarily divert grading away from exposed fossils and halt construction activities in the immediate vicinity in order to professionally and efficiently recover the fossil specimens and collect associated data. The qualified paleontologist will prepare progress reports to be filed with the client and the lead agency.
C. At each fossil locality, field data forms will be used to record pertinent geologic data, stratigraphic sections will be measured, and appropriate sediment samples will be collected and submitted for analysis.
D. Matrix sampling would be conducted to test for the presence of microfossils. Testing for microfossils would consist of screen-washing small samples (approximately 200 pounds) to determine if significant fossils are present. If microfossils are present, additional matrix samples will be collected (up to a maximum of 6,000 pounds per locality to ensure recovery of a scientifically significant microfossil sample).
E. Recovered fossils will be prepared to the point of curation, identified by qualified experts, listed in a database to facilitate analysis, and reposited in a designated paleontological curation facility. The most likely repository is the SDNHM.
F. The qualified paleontologist will prepare a final monitoring and mitigation report to be filed with the client, the lead agency, and the repository.

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SECTION 9.0 – REFERENCES

Dibblee, T.W., and J.A. Minch
2008 Geologic map of the Kane Spring 15 minute quadrangle, Imperial County, California. Dibblee Geological Foundation, Dibblee Foundation Map DF-408, scale 1:62,500.

Dorsey, R.
2006 Stratigraphy, tectonics, and basin evolution in the Anza-Borrego Desert region. in, Jefferson, G.T. and L. Lindsay (eds.), Fossil Treasures of the Anza-Borrego Desert. Sunbelt Publications, San Diego, California, p. 89-104.

Hubbs, C.L. and R.R. Miller
1948 The Great Basin. Part II, The zoological evidence. University of Utah, Bulletin 38: 18-144.

Kirby, S.M., S.U. Janecke, R.J. Dorsey, B.A. Housen, K. McDougall, V. Langenheim, and A. Steely
2007 Pleistocene Brawley and Ocotillo Formations: Evidence for initial strikeslip deformation along the San Felipe and San Jacinto fault zones, California. The Journal of Geology 115: 43–62.

Lutz, A.T., R.J. Dorsey, B.A. Housen, and S.U. Janecke
2006. Stratigraphic record of Pleistocene faulting and basin evolution in the Borrego Badlands, San Jacinto fault zone, Southern California: Geological Society of America Bulletin 118: 1377–1397.

San Diego Natural History Museum (SDNHM)
2019 Unpublished Paleontological Collections Data.

Society for Vertebrate Paleontology (SVP)
2010 Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources.

Stearns, R.E.C.
1901 The fossil fresh-water shells of the Colorado Desert, their distribution, environment, and variation, U.S. National Museum, Proceedings 24(1256): 271-299.

Steely, A.N., S.U. Janecke, R.J. Dorsey, and G.J. Axen
2009 Early Pleistocene initiation of the San Felipe fault zone, SW Salton Trough, during reorganization of the San Andreas fault system. Geological Society of America Bulletin 121: 663-687.

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APPENDIX A – CONFIDENTIAL MUSEUM RECORDS SEARCH

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APPENDIX E – WATER QUALITY MANAGEMENT PLAN

CHAMBERS GROUP

Note to the Reader

On December 17th, 2019 ORMAT Nevada Inc. (ORMAT) submitted an application to the County of Imperial Planning & Development Services Department to amend Conditional Use Permit (CUP) No. 15-0013 for the Heber 1 geothermal facility in Imperial County, CA. The amendment proposed a Repower Project which would take the existing dual-flash steam turbine generator out of service and install two new OEC geothermal power generation units to increase performance of the facility (Project). The Project also included installation of new equipment including six 10,000-gallon isopentane storage tanks and an evacuation skid/vapor recovery maintenance unit. Based on close coordination with the County of Imperial ORMAT has decided to reduce the number of 10,000 gallon isopentane tanks on the Heber 1 site from six tanks to two tanks. While these revisions are not reflected in the text of the following technical report, it does not materially change any of the impact assessments or technical conclusions within the report.

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Water Quality Management Plan

For

Heber 1 Repower Project

895 Pitzer Road

Heber, CA 92249

8/19/2019

Prepared by

Shea Anti, PE 92732
Kimley-Horn and Associates, Inc.
3880 Lemon Street, Suite 420
Riverside, CA 92501
951.543.9868

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E. Source Control BMPs Proposed

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G. Operation and Maintenance

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1 Project Information

Table 1 summarizes basic project information. Appendix A includes a vicinity map of the project.

Table 1. Project Summary

Project Name	Heber 1 Repower Project
Address	895 Pitzer Road, Heber, CA 92249
Total Size (acres or square feet)	24.92 AC / 1,085,595 SF
Project Description	Installation of 4 air coolers, 3 Ormat Energy Converters (OECs), and 6 new Isopentane Above Ground Storage Tanks on the southern portion of APN 054-250-036. See Appendix B for a Site Plan of the proposed work. Due to the fact that there are 2 existing isopentane tanks onsite, the 6 new tanks will follow the same procedures as those in place for the existing tanks and therefore do not need to be further addressed in this analysis.

1.1 Hydromodification Applicability

Hydromodification projects must meet additional flow control requirements. Table 2 indicates whether the project is a hydromodification project.

Table 2. Hydromodification Management Requirements Applicability

Hydromodification Project (Y/N): Total project area is 1 acre or larger and results in an increase in impervious area compared to the existing condition of the property	**Y**

1.2 Eligibility for Reduced BMP Sizing or Alternative BMPs

Eligibility for reduced BMP sizing or using alternative BMPs is summarized in Table 3. Any items marked "Y" must be explained briefly below the table. Note: All proposed impervious area for this development replaces existing pervious area.

Table 3. Applicability of Special BMP Sizing or Selection Standards

Redevelopment qualifying for reduced BMP sizing due to 50% rule (Y/N): results in increase of less than 50% of the impervious surface when compared to the existing condition of the property. Perform the following calculation: The area of existing (pre-project) impervious area at the project site is: 220,064 ft^2 (A) The total proposed newly created or replaced impervious area is: 141,295 ft^2 (B) Percent impervious surface created or replaced: (B/A)*100 = 64.2% (C) Qualifies if "C" is less than or equal to 50%.	**N**
Road or Linear Underground/Overhead Project (LUP) qualifying for special BMP sizing and selection (Y/N): most roads and LUPs qualify. See details in Section 4.3.2.2 of the El Centro Post-Construction Storm Water Standards Manual	N
Downtown project eligible for alternative BMP selection (Y/N): project creating/replacing less than 1 acre of impervious area, with at least 85% of entire project site covered by permanent structures, and located in the area bounded by State, Broadway, 4th, and 8th. See Section 4.3.4.4 of the El Centro Post-Construction Storm Water Standards Manual.	N

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Historic project eligible for alternative BMP selection (Y/N): Historic sites, structures or landscapes that cannot alter their original configuration in order to maintain their historic integrity. See Section 4.3.4.4 of the El Centro Post-Construction Storm Water Standards Manual.	N

2 Drainage Management Areas

Table 4 below summarizes the project's Drainage Management Areas (DMA). Runoff calculations for the Storm Water Design Volume (SDV) are based on Section 4.3.2 of the "City of El Centro Post-Construction Storm Water Best Management Practice Standards Manual for Development Projects" (2015), per the steps outlined below:

- $C = 0.858 \times i^3 - 0.78 \times i^2 + 0.774 \times i + 0.04$ = **0.243**
  - C = runoff coefficient
  - i = (impervious area within DMA) / (total DMA area)
    = (361,359 sf) / (1,085,595 sf) = **0.333**
- $P_0 = (a \times C) \times P_6$ = **0.195 in**
  - P_0 = DMA-specific unit storm water volume
  - a = regression constant (1.963)
  - C = runoff coefficient
  - P_6 = mean annual runoff-producing rainfall depth (0.41 for El Centro)
- $SDV = A \times (P_0/12)$ = **17,683 cf**
  - SDV = storm water volume (cf)
  - A = DMA area (sf)
  - P_0 = unit storm water volume (in)

Table 4. DMA Summary

DMA ID	Total DMA Area (sf)	Impervious Area (sf)	Storm Water Design Volume, *SDV* (cf)
1	1,085,595	361,359	17,683

Appendix C includes a map of the site showing the DMA 1 area, impervious and pervious surfaces, and BMPs for the site.

3 Site Design BMPs

Site Design BMPs are techniques to reduce runoff from the project site. Site Design BMPs reduce the volume of storm water to be treated by Low Impact Development (LID) or treatment BMPs. Site Design BMP measures per the "City of El Centro Post-Construction Storm Water Best Management Practice Standards Manual for Development Projects" (2015) are not applicable to the proposed development.

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4 Low Impact Development and Treatment BMPs

The amount runoff to be treated by Low Impact Development (LID) or treatment BMPs is calculated as follows:

$SDV - V_{SD} = V_R$

SDV: Storm Water Design Volume (see Table 4)

V_{SD}: volume of runoff reduced by site design BMPs

V_R: remaining volume Low Impact Development and Treatment BMPs of runoff to be treated

Table 5 summarizes these values by DMA.

Table 5. DMA Runoff Summary by DMA

DMA ID	Storm Water Design Volume, *SDV* (cf)	Runoff Reduction from Site Design, V_{SD} (cf)	Remaining Runoff to be Treated, V_R (cf)	LID or Treatment BMP Used
1	17,683	17,683	0	Bioretention Basin

The rationale for using a BMP other than bioretention, if applicable, is described in Table 6.

Table 6. Use of BMPs Other than Bioretention

If BMPs other than bioretention were used, explain why they are as effective as bioretention.	N/A

Calculations for the proposed LID or treatment BMPs are included in Appendix D. The proposed BMP is a retention basin sized to capture and retain the DCV volume.

5 Flow Control BMPs

5.1 Flow Control BMPs for Hydromodification Projects

Hydromodification projects, as identified in Section 1.2, must meet the following standard:

- Post-project runoff for Hydromodification Projects shall not exceed estimated pre-project peak flow rate for the 10-year, 24-hour storm.

In Final Engineering, the proposed retention basin is to be designed to capture the 10-year, 24-hour storm water runoff and contain it while the water evaporates. During evaporation, the water will need to be moderated by approved vector control equipment. As a result, the post-project runoff will not exceed the estimated pre-project runoff.

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5.2 Flood Control Requirements

Projects must also meet all standards for flood control and applicable flood control standards from IID and Caltrans, as applicable.

Generally, flood control standards require the project to provide sufficient storage capacity to capture runoff from a 3 inch storm, typically using a retention or detention basin. In Final Engineering, the retention basin should be designed to meet this and/or other applicable requirements.

6 Source Control BMPs

Source control BMPs must be implemented, where applicable and feasible. Appendix E provides a list of required source control BMPs, along with whether each will be implemented at the proposed project. Source control BMPs marked as not applicable include an explanation of why they are not applicable.

7 Operation and Maintenance

An operation and maintenance plan for proposed BMPs is to be included in Final Engineering.

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Appendix A. Vicinity Map

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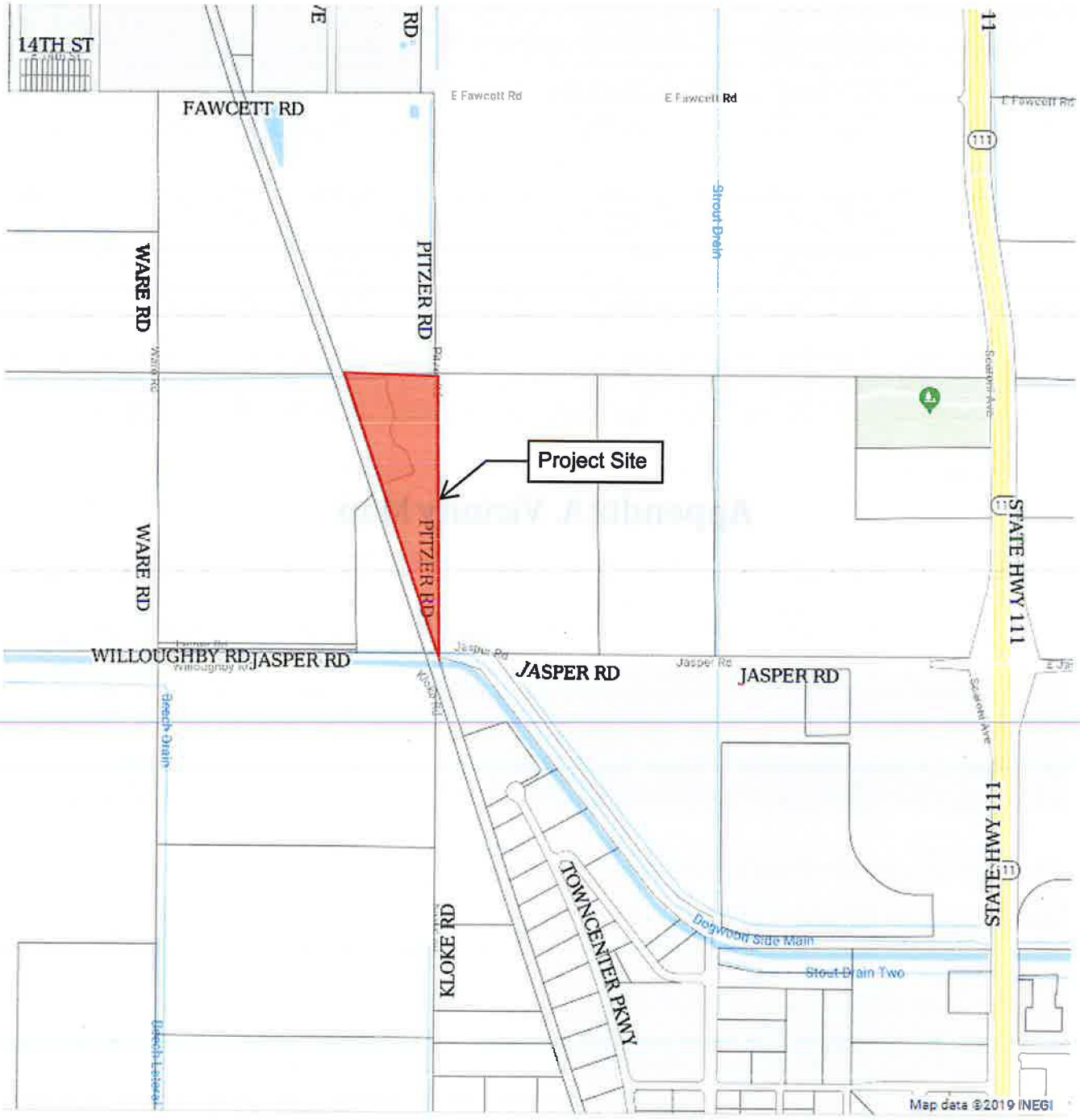
Vicinity Map



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Appendix B. Site Plan

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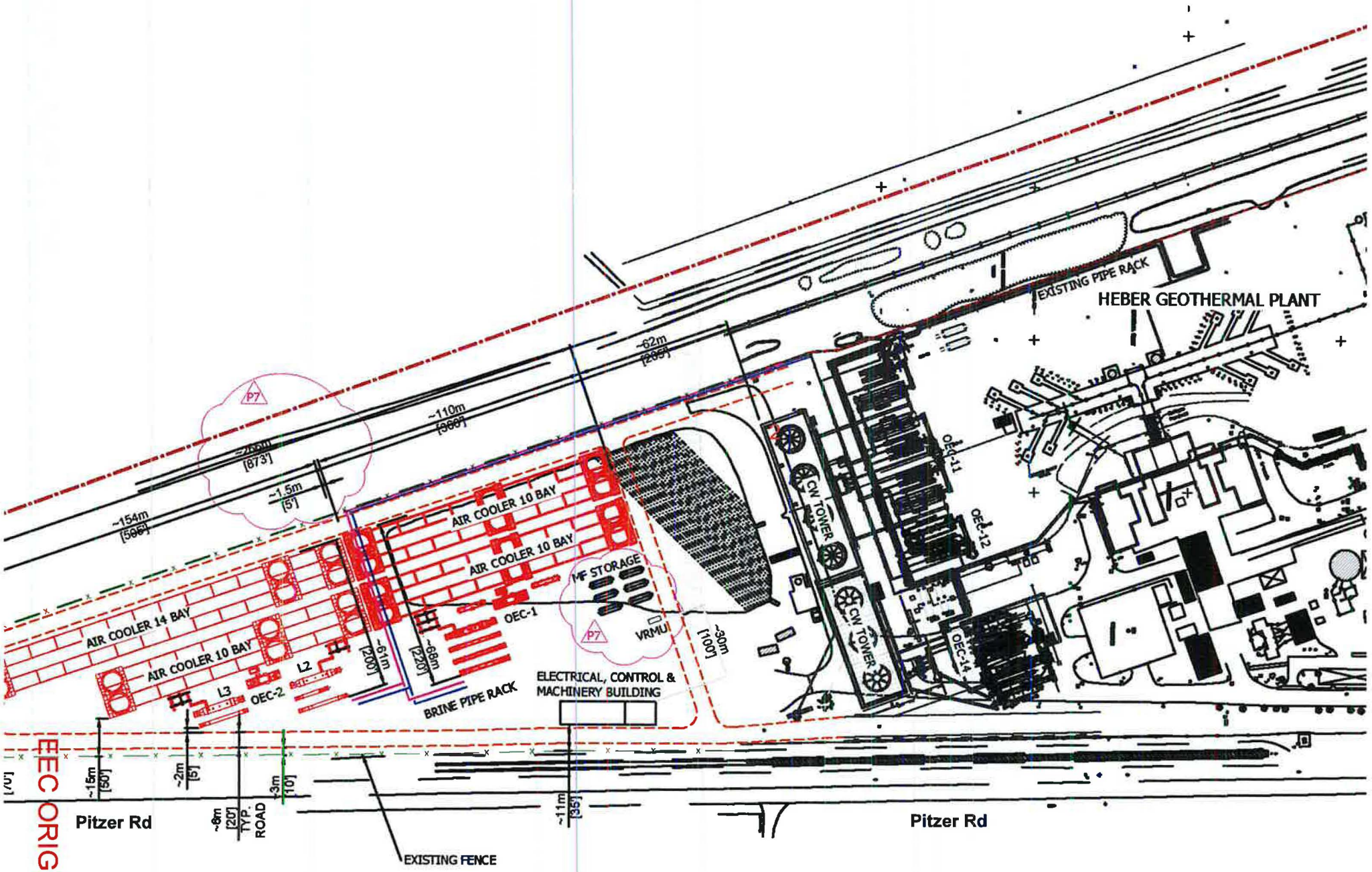

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PREPARED BY:

Appendix C. Project Drainage Management Area and BMP Map

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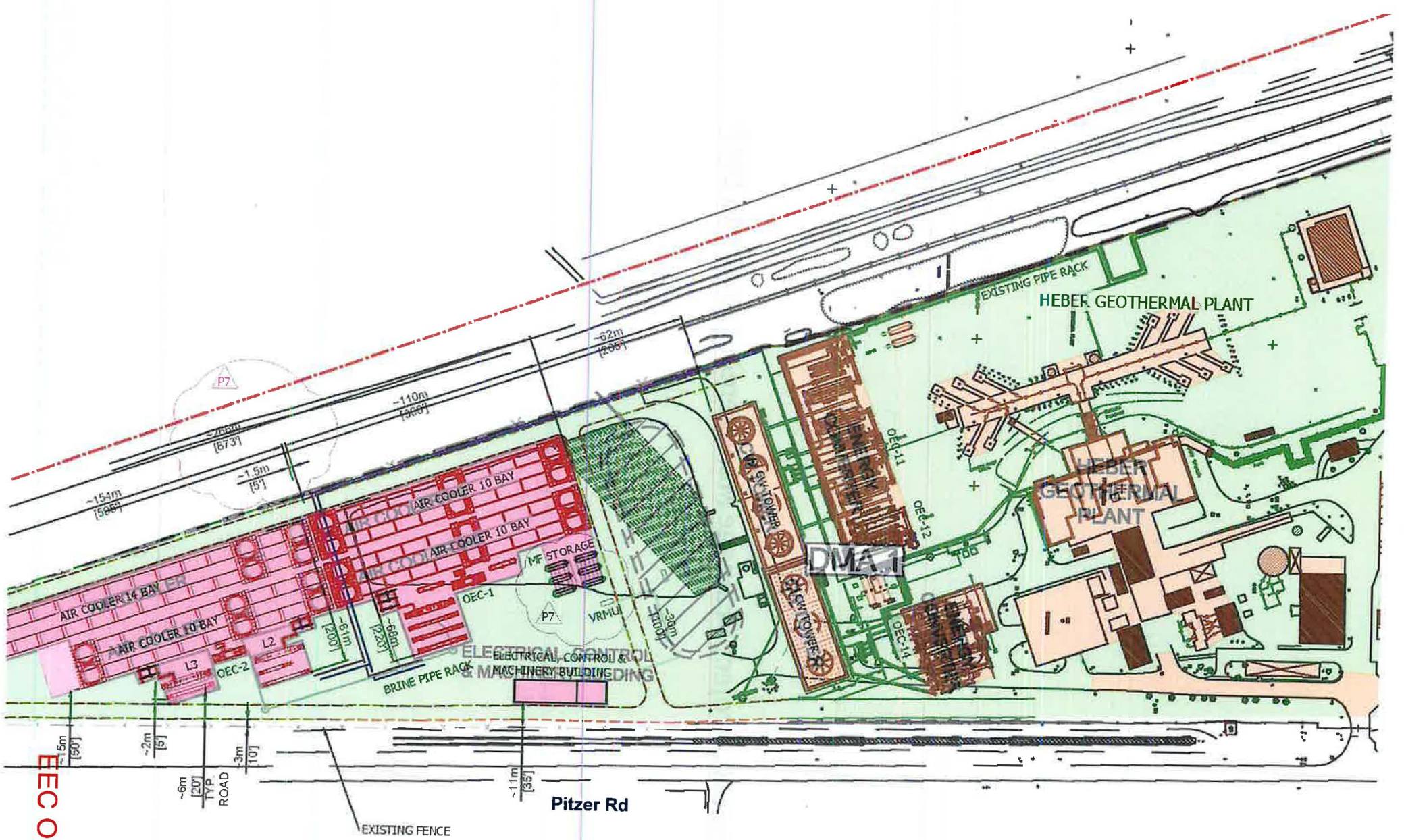

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Appendix D. LID and Treatment BMP Sizing Calculations and Design Characteristic

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Design Capture Volume Calculations

Project Name: Heber 1 Repower Project
Completed by: James Herrick
Checked by: Shea Anti
Date: 19-Aug-19
County: Imperial County

Design Capture Volume

	DMA 1
Impervious Area (S.F.)	361,359
Area (S.F.)	1,085,595
Impervious Fraction, i	0.333
Runoff Coefficient, C	0.243
Mean Storm Rainfall Depth, P_6 (in.)	0.410
Regression Constant, a_2	1.963
DMA-Specific unit storm water volume, P_0	0.195
DCV (C.F.)	17,683

Proposed BMP Basin Volume

	DMA 1
Average Basin Area (Top+Bottom, sf)	38,582
Elevation Difference (ft)	7
Volume of Basin (cf)*	270,072

* Based on Grading Plan by Dynamic Consulting Engineers, dated 8/9/19

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Appendix E. Source Control BMPs Proposed

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Form 4.1-1 Non-Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, if not applicable, state reason
		Included	Not Applicable	
N1	Education of Property Owners, Tenants and Occupants on Stormwater BMPs	☒	☐	Owner shall familiarize him/herself with the contents of this WQMP and furnish copies of BMP factsheets to all future tenants.
N2	Activity Restrictions	☐	☒	No activity restrictions planned for site
N3	Landscape Management BMPs	☐	☒	No landscaping proposed for site
N4	BMP Maintenance	☒	☐	BMPs to be maintained per maintenance plans determined in Final Engineering.
N5	Title 22 CCR Compliance (How development will comply)	☐	☒	No hazardous waste is defined for site
N6	Local Water Quality Ordinances	☒	☐	Owner shall ensure business activities at the site comply with the City's Stormwater Ordinance through the implementation of BMP's included in this report.
N7	Spill Contingency Plan	☐	☒	No hazardous waste is defined for site
N8	Underground Storage Tank Compliance	☐	☒	No underground storage tanks on site
N9	Hazardous Materials Disclosure Compliance	☐	☒	No hazardous waste is defined for site

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Form 4.1-1 Non-Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, if not applicable, state reason
		Included	Not Applicable	
N10	Uniform Fire Code Implementation	☐	☒	No hazardous waste.
N11	Litter/Debris Control Program	☒	☐	A program shall be implemented to pick up litter, sweep and clean the trash enclosure on a weekly basis. Owner shall ensure tenants contract with a refuse company to have dumpsters emptied on a weekly basis, at a minimum.
N12	Employee Training	☒	☐	Owner shall establish an educational program for site employees and contractors to inform and train personnel engaged in maintenance activities.
N13	Housekeeping of Loading Docks	☐	☒	No loading docks are proposed
N14	Catch Basin Inspection Program	☐	☒	No catch basins are proposed.
N15	Vacuum Sweeping of Private Streets and Parking Lots	☒	☒	No parking lots are proposed.
N16	Other Non-structural Measures for Public Agency Projects	☐	☒	Not a public agency project
N17	Comply with all other applicable NPDES permits	☒	☐	All required application NPDES permits will be obtained by the contractor including filing an NOI, SWPPP and obtaining a WDID # prior to the start of construction.

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Form 4.1-2 Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, If not applicable, state reason
		Included	Not Applicable	
S1	Provide storm drain system stencilling and signage (CASQA New Development BMP Handbook SD-13)	☐	☒	Storm drain system is not designed to enter the public system at any point.
S2	Design and construct outdoor material storage areas to reduce pollution introduction (CASQA New Development BMP Handbook SD-34)	☐	☒	No proposed outdoor storage
S3	Design and construct trash and waste storage areas to reduce pollution introduction (CASQA New Development BMP Handbook SD-32)	☒	☐	All dumpsters shall have working lids which shall be kept closed at all times. Trash enclosure shall comply with CASQA SD-32 and shall be enclosed and have a roof.
S4	Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control (Statewide Model Landscape Ordinance; CASQA New Development BMP Handbook SD-12)	☐	☒	No irrigation system proposed for site.
S5	Finish grade of landscaped areas at a minimum of 1-2 inches below top of curb, sidewalk, or pavement	☐	☒	No landscaped areas proposed for site.
S6	Protect slopes and channels and provide energy dissipation (CASQA New Development BMP Handbook SD-10)	☐	☒	No slopes and channels on site.
S7	Covered dock areas (CASQA New Development BMP Handbook SD-31)	☐	☒	No loading docks are proposed on site.
S8	Covered maintenance bays with spill containment plans (CASQA New Development BMP Handbook SD-31)	☐	☒	No maintenance bays are proposed onsite
S9	Vehicle wash areas with spill containment plans (CASQA New Development BMP Handbook SD-33)	☐	☒	No vehicle wash areas
S10	Covered outdoor processing areas (CASQA New Development BMP Handbook SD-36)	☐	☒	No outdoor processing areas

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Form 4.1-2 Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, If not applicable, state reason
		Included	Not Applicable	
S11	Equipment wash areas with spill containment plans (CASQA New Development BMP Handbook SD-33)	☐	☒	No outdoor equipment
S12	Fueling areas (CASQA New Development BMP Handbook SD-30)	☐	☒	No fueling areas necessary on site
S13	Hillside landscaping (CASQA New Development BMP Handbook SD-10)	☐	☒	No hillside areas on site
S14	Wash water control for food preparation areas	☐	☒	No food preparation areas.
S15	Community car wash racks (CASQA New Development BMP Handbook SD-33)	☐	☒	No community carwash racks

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Appendix F. BMP Fact Sheets

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Infiltration Basin TC-11



Maintenance Concerns, Objectives, and Goals

- Vector Control
- Clogged soil or outlet structures
- Vegetation/Landscape Maintenance
- Groundwater contamination
- Accumulation of metals
- Aesthetics

General Description

An infiltration basin is a shallow impoundment that is designed to infiltrate stormwater. Infiltration basins use the natural filtering ability of the soil to remove pollutants in stormwater runoff. Infiltration facilities store runoff until it gradually infiltrates into the soil and eventually into the water table. This practice has high pollutant removal efficiency and can also help recharge groundwater, thus helping to maintain low flows in stream systems. Infiltration basins can be challenging to apply on many sites, however, because of soils requirements. In addition, some studies have shown relatively high failure rates compared with other management practices.

Targeted Constituents

✓	Sediment	■
✓	Nutrients	■
✓	Trash	■
✓	Metals	■
✓	Bacteria	■
✓	Oil and Grease	■
✓	Organics	■
✓	Oxygen Demanding	■

Legend *(Removal Effectiveness)*

● Low ■ High

▲ Medium

Inspection/Maintenance Considerations

Infiltration basins perform better in well-drained permeable soils. Infiltration basins in areas of low permeability can clog within a couple years, and require more frequent inspections and maintenance. The use and regular maintenance of pretreatment BMPs will significantly minimize maintenance requirements for the basin. Spill response procedures and controls should be implemented to prevent spills from reaching the infiltration system.

Scarification or other disturbance should only be performed when there are actual signs of clogging or significant loss of infiltrative capacity, rather than on a routine basis. Always remove deposited sediments before scarification, and use a hand-guided rotary tiller, if possible, or a disc harrow pulled by a light tractor. This BMP may require groundwater monitoring. Basins cannot be put into operation until the upstream tributary area stabilized.

CASQA California Stormwater Quality Association is

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Clogged infiltration basins with surface standing water can become a breeding area for mosquitoes and midges. Maintenance efforts associated with infiltration basins should include frequent inspections to ensure that water infiltrates into the subsurface completely (recommended infiltration rate of 72 hours or less) and that vegetation is carefully managed to prevent creating mosquito and other vector habitats.

Inspection Activities	Suggested Frequency
■ Observe drain time for a storm after completion or modification of the facility to confirm that the desired drain time has been obtained. ■ Newly established vegetation should be inspected several times to determine if any landscape maintenance (reseeding, irrigation, etc.) is necessary.	Post construction
■ Inspect for the following issues: differential accumulation of sediment, signs of wetness or damage to structures, erosion of the basin floor, dead or dying grass on the bottom, condition of riprap, drain time, signs of petroleum hydrocarbon contamination, standing water, trash and debris, sediment accumulation, slope stability, pretreatment device condition	Semi-annual and after extreme events
Maintenance Activities	**Suggested Frequency**
■ Factors responsible for clogging should be repaired immediately. ■ Weed once monthly during the first two growing seasons.	Post construction
■ Stabilize eroded banks. ■ Repair undercut and eroded areas at inflow and outflow structures. ■ Maintain access to the basin for regular maintenance activities. ■ Mow as appropriate for vegetative cover species.	Standard maintenance (as needed)
■ Monitor health of vegetation and replace as necessary. ■ Control mosquitoes as necessary. ■ Remove litter and debris from infiltration basin area as required.	
■ Mow and remove grass clippings, litter, and debris. ■ Trim vegetation at the beginning and end of the wet season to prevent establishment of woody vegetation and for aesthetic and vector reasons. ■ Replant eroded or barren spots to prevent erosion and accumulation of sediment.	Semi-annual
■ Scrape bottom and remove sediment when accumulated sediment reduces original infiltration rate by 25-50%. Restore original cross-section and infiltration rate. Properly dispose of sediment. ■ Seed or sod to restore ground cover. ■ Disc or otherwise aerate bottom. ■ Dethatch basin bottom.	3-5 year maintenance

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Additional Information

In most cases, sediment from an infiltration basin does not contain toxins at levels posing a hazardous concern. Studies to date indicate that pond sediments are generally below toxicity limits and can be safely landfilled or disposed onsite. Onsite sediment disposal is always preferable (if local authorities permit) as long as the sediments are deposited away from the shoreline to prevent their reentry into the pond and away from recreation areas, where they could possibly be ingested by young children. Sediments should be tested for toxicants in compliance with current disposal requirements if land uses in the catchment include commercial or industrial zones, or if visual or olfactory indications of pollution are noticed. Sediments containing high levels of pollutants should be disposed of properly.

Light equipment, which will not compact the underlying soil, should be used to remove the top layer of sediment. The remaining soil should be tilled and revegetated as soon as possible.

Sediment removal within the basin should be performed when the sediment is dry enough so that it is cracked and readily separates from the basin floor. This also prevents smearing of the basin floor.

References

King County, Stormwater Pollution Control Manual – Best Management Practices for Businesses. July, 1995 Available at: ftp://dnr metrokc.gov/wlr/dss/spcm/SPCM.HTM

Metropolitan Council, Urban Small Sites Best Management Practices Manual. Available at: http://www.metrocouncil.org/environment/Watershed/BMP/manual.htm

U.S. Environmental Protection Agency, Post-Construction Stormwater Management in New Development & Redevelopment BMP Factsheets. Available at: http://www.cfpub.epa.gov/npdes/stormwater/menuofbmps/bmp_files.cfm

Ventura Countywide Stormwater Quality Management Program, Technical Guidance Manual for Stormwater Quality Control Measures. July, 2002.

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Site Design & Landscape Planning SD-10



Design Objectives

- ☑ Maximize Infiltration
- ☑ Provide Retention
- ☑ Slow Runoff
- ☑ Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- Contain Pollutants
- Collect and Convey

Description

Each project site possesses unique topographic, hydrologic, and vegetative features, some of which are more suitable for development than others. Integrating and incorporating appropriate landscape planning methodologies into the project design is the most effective action that can be done to minimize surface and groundwater contamination from stormwater.

Approach

Landscape planning should couple consideration of land suitability for urban uses with consideration of community goals and projected growth. Project plan designs should conserve natural areas to the extent possible, maximize natural water storage and infiltration opportunities, and protect slopes and channels.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment.

Design Considerations

Design requirements for site design and landscapes planning should conform to applicable standards and specifications of agencies with jurisdiction and be consistent with applicable General Plan and Local Area Plan policies.

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SD-10 Site Design & Landscape Planning

Designing New Installations

Begin the development of a plan for the landscape unit with attention to the following general principles:

- Formulate the plan on the basis of clearly articulated community goals. Carefully identify conflicts and choices between retaining and protecting desired resources and community growth.
- Map and assess land suitability for urban uses. Include the following landscape features in the assessment: wooded land, open unwooded land, steep slopes, erosion-prone soils, foundation suitability, soil suitability for waste disposal, aquifers, aquifer recharge areas, wetlands, floodplains, surface waters, agricultural lands, and various categories of urban land use. When appropriate, the assessment can highlight outstanding local or regional resources that the community determines should be protected (e.g., a scenic area, recreational area, threatened species habitat, farmland, fish run). Mapping and assessment should recognize not only these resources but also additional areas needed for their sustenance.

Project plan designs should conserve natural areas to the extent possible, maximize natural water storage and infiltration opportunities, and protect slopes and channels.

Conserve Natural Areas during Landscape Planning

If applicable, the following items are required and must be implemented in the site layout during the subdivision design and approval process, consistent with applicable General Plan and Local Area Plan policies:

- Cluster development on least-sensitive portions of a site while leaving the remaining land in a natural undisturbed condition.
- Limit clearing and grading of native vegetation at a site to the minimum amount needed to build lots, allow access, and provide fire protection.
- Maximize trees and other vegetation at each site by planting additional vegetation, clustering tree areas, and promoting the use of native and/or drought tolerant plants.
- Promote natural vegetation by using parking lot islands and other landscaped areas.
- Preserve riparian areas and wetlands.

Maximize Natural Water Storage and Infiltration Opportunities Within the Landscape Unit

- Promote the conservation of forest cover. Building on land that is already deforested affects basin hydrology to a lesser extent than converting forested land. Loss of forest cover reduces interception storage, detention in the organic forest floor layer, and water losses by evapotranspiration, resulting in large peak runoff increases and either their negative effects or the expense of countering them with structural solutions.
- Maintain natural storage reservoirs and drainage corridors, including depressions, areas of permeable soils, swales, and intermittent streams. Develop and implement policies and

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regulations to discourage the clearing, filling, and channelization of these features. Utilize them in drainage networks in preference to pipes, culverts, and engineered ditches.

- Evaluating infiltration opportunities by referring to the stormwater management manual for the jurisdiction and pay particular attention to the selection criteria for avoiding groundwater contamination, poor soils, and hydrogeological conditions that cause these facilities to fail. If necessary, locate developments with large amounts of impervious surfaces or a potential to produce relatively contaminated runoff away from groundwater recharge areas.

Protection of Slopes and Channels during Landscape Design

- Convey runoff safely from the tops of slopes.
- Avoid disturbing steep or unstable slopes.
- Avoid disturbing natural channels.
- Stabilize disturbed slopes as quickly as possible.
- Vegetate slopes with native or drought tolerant vegetation.
- Control and treat flows in landscaping and/or other controls prior to reaching existing natural drainage systems.
- Stabilize temporary and permanent channel crossings as quickly as possible, and ensure that increases in run-off velocity and frequency caused by the project do not erode the channel.
- Install energy dissipaters, such as riprap, at the outlets of new storm drains, culverts, conduits, or channels that enter unlined channels in accordance with applicable specifications to minimize erosion. Energy dissipaters shall be installed in such a way as to minimize impacts to receiving waters.
- Line on-site conveyance channels where appropriate, to reduce erosion caused by increased flow velocity due to increases in tributary impervious area. The first choice for linings should be grass or some other vegetative surface, since these materials not only reduce runoff velocities, but also provide water quality benefits from filtration and infiltration. If velocities in the channel are high enough to erode grass or other vegetative linings, riprap, concrete, soil cement, or geo-grid stabilization are other alternatives.
- Consider other design principles that are comparable and equally effective.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of " redevelopment" must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under "designing new installations" above should be followed.

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Redevelopment may present significant opportunity to add features which had not previously been implemented. Examples include incorporation of depressions, areas of permeable soils, and swales in newly redeveloped areas. While some site constraints may exist due to the status of already existing infrastructure, opportunities should not be missed to maximize infiltration, slow runoff, reduce impervious areas, disconnect directly connected impervious areas.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Stormwater Management Manual for Western Washington, Washington State Department of Ecology, August 2001.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

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Trash Storage Areas SD-32

Description

Trash storage areas are areas where a trash receptacle (s) are located for use as a repository for solid wastes. Stormwater runoff from areas where trash is stored or disposed of can be polluted. In addition, loose trash and debris can be easily transported by water or wind into nearby storm drain inlets, channels, and/or creeks. Waste handling operations that may be sources of stormwater pollution include dumpsters, litter control, and waste piles.

Approach

This fact sheet contains details on the specific measures required to prevent or reduce pollutants in stormwater runoff associated with trash storage and handling. Preventative measures including enclosures, containment structures, and impervious pavements to mitigate spills, should be used to reduce the likelihood of contamination.

Design Objectives

- Maximize Infiltration
- Provide Retention
- Slow Runoff
- Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- ☑ Contain Pollutants
- Collect and Convey

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment. (Detached residential single-family homes are typically excluded from this requirement.)

Design Considerations

Design requirements for waste handling areas are governed by Building and Fire Codes, and by current local agency ordinances and zoning requirements. The design criteria described in this fact sheet are meant to enhance and be consistent with these code and ordinance requirements. Hazardous waste should be handled in accordance with legal requirements established in Title 22, California Code of Regulation.

Wastes from commercial and industrial sites are typically hauled by either public or commercial carriers that may have design or access requirements for waste storage areas. The design criteria in this fact sheet are recommendations and are not intended to be in conflict with requirements established by the waste hauler. The waste hauler should be contacted prior to the design of your site trash collection areas. Conflicts or issues should be discussed with the local agency.

Designing New Installations

Trash storage areas should be designed to consider the following structural or treatment control BMPs:

- Design trash container areas so that drainage from adjoining roofs and pavement is diverted around the area(s) to avoid run-on. This might include berming or grading the waste handling area to prevent run-on of stormwater.
- Make sure trash container areas are screened or walled to prevent off-site transport of trash.

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- Use lined bins or dumpsters to reduce leaking of liquid waste.
- Provide roofs, awnings, or attached lids on all trash containers to minimize direct precipitation and prevent rainfall from entering containers.
- Pave trash storage areas with an impervious surface to mitigate spills.
- Do not locate storm drains in immediate vicinity of the trash storage area.
- Post signs on all dumpsters informing users that hazardous materials are not to be disposed of therein.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of " redevelopment" must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under "designing new installations" above should be followed.

Additional Information

Maintenance Considerations

The integrity of structural elements that are subject to damage (i.e., screens, covers, and signs) must be maintained by the owner/operator. Maintenance agreements between the local agency and the owner/operator may be required. Some agencies will require maintenance deed restrictions to be recorded of the property title. If required by the local agency, maintenance agreements or deed restrictions must be executed by the owner/operator before improvement plans are approved.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

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APPENDIX F – GEOLOGY AND SOILS EVALUATION

CHAMBERS GROUP

Note to the Reader

On December 17th, 2019 ORMAT Nevada Inc. (ORMAT) submitted an application to the County of Imperial Planning & Development Services Department to amend Conditional Use Permit (CUP) No. 15-0013 for the Heber 1 geothermal facility in Imperial County, CA. The amendment proposed a Repower Project which would take the existing dual-flash steam turbine generator out of service and install two new OEC geothermal power generation units to increase performance of the facility (Project). The Project also included installation of new equipment including six 10,000-gallon isopentane storage tanks and an evacuation skid/vapor recovery maintenance unit. Based on close coordination with the County of Imperial ORMAT has decided to reduce the number of 10,000 gallon isopentane tanks on the Heber 1 site from six tanks to two tanks. While these revisions are not reflected in the text of the following technical report, it does not materially change any of the impact assessments or technical conclusions within the report.

Geology and Soils Evaluation

Heber 1 Repower Project
Imperial County, California

Chambers Group, Inc.

9620 Chesapeake Drive, Suite 202 | San Diego, California 92123

December 6, 2019 | Project No. 108854001



Geotechnical | Environmental | Construction Inspection & Testing | Forensic Engineering & Expert Witness

Geophysics | Engineering Geology | Laboratory Testing | Industrial Hygiene | Occupational Safety | Air Quality | GIS

Ninyo & Moore

Geotechnical & Environmental Sciences Consultants

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Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

December 6, 2019
Project No. 108854001

Mr. Thomas Strand
Chambers Group, Inc.
9620 Chesapeake Drive, Suite 202
San Diego, California 92123

Subject: Geology and Soils Evaluation
Heber 1 Repower Project
Imperial County, California

Dear Mr. Strand:

In accordance with your request, Ninyo & Moore has performed a Geology and Soils Evaluation for the Heber 1 Repower Project located in Imperial County, California. The attached report presents our methodology, findings, and recommendations regarding the geology and soils conditions at the project site.

We appreciate the opportunity to be of service to you on this important project.

Respectfully submitted,
NINYO & MOORE

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1 – Site Location
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4 – Geology

APPENDIX

A – Photographs

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1 INTRODUCTION

In accordance with your request, Ninyo & Moore has completed a geology and soils evaluation for the proposed Heber 1 Repower Project in Imperial County, California (Figure 1). Our evaluation is based on a geologic reconnaissance, review of published and non-published reports, aerial photographs, in-house data, and the assessment of the potential geologic hazards in the project area. The purpose of this geology and soils evaluation was to evaluate the potential for existing environmental impacts related to geologic or soils conditions to affect the project site and adjoining areas, and to discuss measures that can be implemented to reduce or mitigate the potential impacts with respect to the design and construction of the proposed project.

2 SCOPE OF SERVICES

Our scope of services included the following:

- Review of readily available regional, local, and site-specific geologic and geotechnical reports.
- Review of readily available background information including topographic, soils, mineral resources, geologic, and seismic and geologic hazard maps, and stereoscopic aerial photographs.
- Performance of a geologic reconnaissance of the site vicinity. Selected photographs taken during our geologic reconnaissance are included in Appendix A.
- Compilation and analysis of the data obtained from our background reviews and site reconnaissance.
- Preparation of this report documenting findings and providing opinions and recommendations regarding possible geologic and soil impacts at the site. The findings were evaluated with respect to questions A through H listed in Section VII, "Geology and Soils" within Appendix G, "Environmental Checklist Form" of the "Guidelines for Implementation of the California Environmental Quality Act (CEQA)."

3 SITE AND PROJECT DESCRIPTION

The site for the proposed Heber 1 Geothermal Plant expansion is a triangular-shaped parcel in the Heber area of Imperial County, California (Figure 1). The project site includes the existing Heber 1 Geothermal Plant. The project site is bounded by Fawcett Road to the north, Pitzer Road to the east, Jasper Road to the south, and the Union Pacific railroad tracks to the west. The project area is located within the relatively flat bed of the ancient Lake Cahuilla. Elevations across the project site range from approximately 0 to 2 feet above mean sea level (MSL) at the berms surrounding the ponds to a water surface of -6 feet MSL within the ponds.

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Based on our understanding and review of the project description and site plan (Chambers Group, 2019 and Ormat, 2010), the proposed project will occur within the existing Heber 1 facility. The proposed expansion would consist of the replacement of steam turbine and bottoming units with Ormat Integrated three-level unit and Integrated two-level unit, new air cooled Ormat Energy Converters, new isopentane tanks, replacement of brine heat exchangers and generators, and a new retention basin to collect water during a 100 year flood event.

4 GEOLOGIC AND SUBSURFACE CONDITIONS

The following sections present our findings relative to regional and site geology, geologic hazards (e.g., landslides or expansive soils), groundwater, faulting, and seismicity.

4.1 Regional Geologic Setting

The project site is situated within the Salton Trough section of the Colorado Desert physiographic province. The Salton Trough extends from the upper Coachella Valley north of the Salton Sea to the Gulf of California, and is bounded by the Chocolate Mountains to the northeast and the Peninsular Ranges of southern California and Baja California to the west and southwest. The Salton Trough is a rift zone characterized by high seismicity, high heat flux, extensional tectonics, crustal thinning, and rapid sedimentation (Guptill et al., 1986). The seismicity of the Salton Trough area is controlled by several prominent, predominantly northwest-trending faults. These include the Whittier-Elsinore, San Jacinto and San Andreas fault zones. In addition, several northeast-trending cross faults connect the dominant northwest-trending fault systems (Figure 3). Further discussion of faulting relative to the site is provided in the Faulting and Seismicity section of this report.

4.2 Project Site Geology

Based on our review of published geologic maps (Figure 4) and our site reconnaissance, surficial soils within the project area consist of fill and alluvium (Dibblee and Minch, 2008). A brief description of these units, as described in the cited literature or as observed on the site, is presented below.

Fill soils were observed at the project site along the perimeter of the existing ponds (Photographs 1 through 4). As shown in Photographs 2 through 4, the berms surrounding the ponds contain concrete fragments and debris. Alluvium consisting of the Cahuilla Beds associated with the former Lake Cahuilla are mapped as underlying the site. These deposits are anticipated to consist of thinly laminated clays, sands, and gravels.

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4.3 Groundwater

Based on our site observations, water is present within the existing ponds at the project site at an elevation of approximately -6 feet MSL. Groundwater monitoring well data in the site vicinity indicates that groundwater is present at depths as shallow as 6 feet. Groundwater levels can fluctuate due to seasonal variations, groundwater withdrawal or injection, and other factors. Perched water conditions may be encountered in such areas as existing utility trenches and the geologic contacts between granular and clayey materials.

4.4 Faulting And Seismicity

The project site is not located within a State of California Earthquake Fault Zone (formerly known as Alquist-Priolo Special Studies Zone) (Hart and Bryant, 1997). However, it is located in a seismically active area, as is the majority of southern California, and the potential for strong ground motion in the project area is considered significant during the design life of the proposed improvements. The approximate locations of major faults in the region and their geographic relationship to the Project site are shown on Figure 3.

Based on our document review, the active Imperial Fault is located approximately 6 miles northeast of the project site. Table 1 lists selected principal known active faults that may affect the project site and the maximum moment magnitude (M_{max}) as published by the United States Geological Survey (USGS, 2019). The approximate fault-to-site distances were calculated using the USGS fault parameters web-based design tool (USGS, 2019).

Table 1 – Principal Active Faults

Fault	Approximate Fault-to-Site Distance miles (kilometers)	Maximum Moment Magnitude (M_{max})
Imperial	6.0 (9.7)	7.0
Superstition Hills	9.7 (15.6)	6.8
San Jacinto (Superstition Mountain Segment)	15.9 (25.6)	6.7
Laguna Salada	16.5 (26.5)	7.3
Elsinore (Coyote Mountain)	28.9 (46.5)	6.9
Elmore Ranch	29.4 (47.3)	6.7
San Jacinto (Borrego Segment)	31.8 (51.2)	6.8
South San Andreas (Coachella Valley Segment)	45.4 (73.1)	7.0
San Jacinto (Clark Segment)	50.5 (81.3)	7.1
Elsinore (Julian Segment)	51.5 (82.9)	7.4
San Jacinto (Coyote Creek Segment)	52.6 (84.7)	7.0
Earthquake Valley	57.7 (92.9)	6.8

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The principal seismic hazards at the project site are surface fault rupture, strong ground motion, and liquefaction. A brief description of these hazards and the potential for their occurrences on site are discussed below.

4.4.1 Surface Ground Rupture

Based on our review of the referenced literature and our project site reconnaissance, no active faults are known to cross the project site. The active Imperial Fault is located approximately 6 miles northeast of the project site. Therefore, the probability of damage from surface ground rupture is considered to be low. However, lurching or cracking of the ground surface as a result of nearby seismic events is possible.

4.4.2 Ground Motion

The 2016 CBC specifies that the potential for liquefaction and soil strength loss be evaluated, where applicable, for the Maximum Considered Earthquake Geometric Mean (MCEG) peak ground acceleration with adjustment for site class effects in accordance with the American Society of Civil Engineers (ASCE) 7-10 Standard. The MCEG peak ground acceleration is based on the geometric mean peak ground acceleration with a 2 percent probability of exceedance in 50 years. The MCEG peak ground acceleration with adjustment for site class effects (PGA_M) was calculated as 0.55g using a web-based seismic design tool (SEAOC/OSHPD, 2019) that yielded a mapped MCE_G peak ground acceleration of 0.50g for the site and a site coefficient (F_{PGA}) of 1.100 for Site Class D.

4.5 Liquefaction and Seismically Induced Settlement

Liquefaction is the phenomenon in which loosely deposited, saturated granular soils (located below the water table) with clay contents (particles less than 0.005 mm) of less than 15 percent, liquid limit of less than 35 percent, and natural moisture content greater than 90 percent of the liquid limit undergo rapid loss of shear strength due to development of excess pore pressure during strong earthquake-induced ground shaking. Ground shaking of sufficient duration results in the loss of grain-to-grain contact due to rapid rise in pore water pressure and it eventually causes the soil to behave as a fluid for a short period of time. Liquefaction is known generally to occur in saturated or near-saturated cohesionless soils at depths shallower than 50 feet bgs. Factors known to influence liquefaction potential include composition and thickness of soil layers, grain size, relative density, groundwater level, degree of saturation, and both intensity and duration of ground shaking. The sand layers within the fill and lake bed deposits underlying the site may be susceptible to liquefaction.

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4.6 Tsunamis and Seiches

Tsunamis are long wavelength seismic sea waves (long compared to the ocean depth) generated by sudden movements of the ocean bottom during submarine earthquakes, landslides, or volcanic activity. Based on the inland location and elevation of the project site, the potential for a tsunami to impact the project is not a design consideration.

Seiches are oscillations of enclosed or partially enclosed bodies of water often generated by seismic activity. Based on the elevation of the project site and the absence of nearby bodies of water, the potential for seiches to impact the project is considered low.

4.7 Landsliding and Slope Stability

Based on our review of published geologic literature, aerial photographs, and our project reconnaissance, no landslides or related features are known to underlie or be adjacent to the project. Therefore, the potential for landslides at the project is considered low.

Global slope stability is not anticipated to be a design consideration at the project due to the relatively flat nature of the site. However, surficial stability and erosion may be design considerations in berms or the sloped pond basins.

4.8 Expansive Soils

Expansive soils generally result from specific clay minerals that have the capacity to shrink or swell in response to changes in moisture content. Shrinking or swelling of foundation soils can lead to damage to slabs, foundations, and other engineered structures, including tilting and cracking. Based on our review of background materials and our geologic reconnaissance, soils in the project area are anticipated to have a potential for expansion. Laboratory testing should be performed to evaluate the expansion potential of site soils.

4.9 Corrosive Soils

Caltrans corrosion criteria (2015) consider soils with more than 500 parts per million (ppm) chlorides, more than 0.2 percent sulfates, or a pH less than 5.5 to be corrosive. Site soils may be corrosive. Laboratory testing should be performed to evaluate the corrosivity of site soils.

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5 CONCLUSIONS

Based on our review of the referenced background data and our geologic field reconnaissance it is our opinion that geologic and geotechnical considerations at the project site include the following:

- Surface and near-surface soils at the project are mapped as alluvium. Fill materials are also anticipated to be present at the project site. Geotechnical constraints related to soils at the project are:
  - *Soft Ground* – Areas with soft ground or loose soils can be found in areas underlain by existing fill and alluvium.
  - *Expansive Soils* – The project soils are expected to have a moderate to high potential for expansion.
  - *Fill Soils* – Fill soils placed without engineering supervision may be loosely or inadequately compacted, may contain oversize materials unsuitable for reuse in engineered fills, and may contain unsuitable organic or expansive materials and debris that may preclude their use in engineered fills.
- The closest known major active fault is the Imperial Fault, which is located approximately 6 miles northeast of the project. Geotechnical constraints related to faulting and seismic events at the project are:
  - Ground Shaking – The project has a moderate potential for strong ground motions due to earthquakes on nearby active faults.
  - Liquefaction – Based on the generally loose nature of the materials underlying the project site and the shallow historic groundwater, the potential for liquefaction within sand layers underlying the site is anticipated to be a design consideration.
- Shallow groundwater may occur beneath portions of the project in existing drainages and ponds.
- Surficial stability and erosion may be design considerations in berms or the sloped pond basins.
- Due to the inland location and elevation of the project, significant flooding or dam inundation are not considered design constraints.
- Based on previous work in the project area, some soils at the project site may be expansive and corrosive.

The conditions described above would increase the cost and duration of grading and construction of the project, but would not preclude development of the project.

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6 RECOMMENDATIONS

Based on the geologic and geotechnical considerations at the project site presented in the previous section, our general recommendations are presented below. These recommendations assume that a geotechnical evaluation, including subsurface evaluation and laboratory testing, will be conducted prior to finalization of project plans and specific recommendations will be provided at that time.

- Soft Ground – Soils in areas with soft ground or loose soils in the area of the proposed project may be subject to settlement. A recommendation to mitigate this condition could typically include removal and/or replacement of soils as engineered compacted fill. The extent of soft soils and recommended removals may be evaluated by subsurface investigation and laboratory testing.

- Expansive Soils – Expansive soils may lead to damage to foundations and engineered structures. If expansive soils exist on site, the following recommendations may be implemented during construction: the soils may be removed from distress sensitive areas and placed in deeper fill areas; the soils may be excavated and removed from the site; or the expansive soils may be treated (i.e., lime treatment) to mitigate their potential for expansion. The extent of expansive soils and recommended mitigation measures may be evaluated by subsurface investigation and laboratory testing.

- Ground Shaking – Proposed structures should be designed appropriately to mitigate strong ground shaking in the event of an earthquake on a nearby fault.

- Liquefaction – The site is underlain by alluvium consisting of thinly laminated clays, sands, and gravels. Historically, shallow groundwater is present at the site. Sandy layers within the alluvium may be considered susceptible to liquefaction and dynamic settlement. If site soils are found to be susceptible to liquefaction, the following recommendations may be implemented during construction; removal and replacement of soils susceptible to static settlement or liquefaction; densification of these soils; utilization of deep foundations; or lowering of the groundwater table. The extent of liquefiable soils and recommended mitigation measures may be evaluated by subsurface investigation and laboratory testing.

- Shallow groundwater – Shoring and dewatering may be required if construction is proposed in areas of shallow groundwater.

- Landsliding – Landslides have not been mapped on the site and none were observed during our site reconnaissance. If encountered, the following recommendations may be implemented during construction to mitigate landsliding: removal of the slide masses and replacement with engineered fill; the placement of buttress fills; or a combination of these recommendations. The extent of on-site landsliding and potentially unstable earth materials and recommended mitigation measures may be evaluated by subsurface investigation and laboratory testing.

- Corrosive Soils – If corrosive soils exist on the site, a corrosion engineer may be required to assist in the design of improvements in contact with the soil. The extent of corrosive soils and recommended mitigation measures may be evaluated by subsurface investigation and laboratory testing.

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7 IMPACT ANALYSIS

Based upon the results of our Geology and Soils Evaluation, our opinions, and recommendations are provided in the following sections.

7.1 Significance Thresholds

In evaluating the significance of potential environmental concerns in a particular study area, the criteria to consider, as they relate to geologic and soil conditions, are presented in the CEQA Guidelines. In accordance with the scope of work, the findings of this study were evaluated with respect to Questions A through E of Section VII "Geology and Soils" with in Appendix G of the CEQA Guidelines (2009).

7.2 Project Impacts and Significance

Based on the above criteria and the results of the evaluation, the potential impact by geologic and soil conditions at the project have been identified, and are discussed below.

A. Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. Rupture of a known earthquake fault, as delineated on the most recent Alquist Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of known fault?

The potential for ground surface rupture due to active faulting is considered low in the project area due to the absence of known active faults underlying the site. However, lurching or cracking of the ground surface as a result of nearby seismic events is possible.

ii. Strong seismic ground shaking?

The project site has a moderate potential for strong ground motions due to earthquakes on nearby active faults.

iii. Seismic related ground failure, including liquefaction?

Based on the generally loose nature of the subsurface materials and shallow historic groundwater, it is our opinion that the potential for liquefaction within sand layers in the alluvium is a design consideration.

iv. Landslides?

Landslides were not observed on or adjacent to the project site. Therefore, the potential for existing landslides is considered low. However, portions of the project site may be subject to surficial slope instability.

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B. Would the project result in substantial soil erosion or the loss of topsoil?

If the site is developed in accordance with current building codes and industry standards, the potential for substantial soil erosion is considered to be low. The potential for substantial loss of topsoil due to the proposed development is considered low.

C. Would the project be located on geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

The alluvial soils underlying the project site may be subject to static settlement or liquefaction during a nearby seismic event.

D. Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

The soils on the project site are expected to have a moderate to high potential for expansion.

8 LIMITATIONS

The field evaluation and geotechnical analyses presented in this report have been conducted in accordance with current engineering practice and the standard of care exercised by reputable geotechnical consultants performing similar tasks in this area. No warranty, implied or expressed, is made regarding the conclusions, recommendations, and professional opinions expressed in this report. Variations may exist and conditions not observed or described in this report may be encountered. Our preliminary conclusions and recommendations are based on an analysis of the observed conditions and the referenced background information.

The purpose of this study was to evaluate geologic and geotechnical conditions within the project site and to provide a preliminary geotechnical evaluation report to assist in the preparation of environmental impact documents for the project. A comprehensive geotechnical evaluation, including subsurface exploration and laboratory testing, should be performed prior to design and construction of structural improvements.

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9 REFERENCES

California Building Standards Commission, 2016, California Building Code, Title 24, Part 2, Volumes 1 and 2.

California Department of Transportation (Caltrans), 2015, Corrosion Guidelines (Version 2.1), Division of Engineering and Testing Services, Corrosion Technology Branch: dated January.

California Department of Water Resources, 2019, Water Data Library Website: TUwdl.water.ca.gov/gw/map/index.cfmUT: accessed in July.

California Geological Survey, 1998, Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada: dated February.

California Geological Survey, 1999, Seismic Shaking Hazard Maps of California: Map Sheet 48.

California State Water Resources Control Board, 2019, GeoTracker Website: www.geotracker.swrcb.ca.gov: accessed in July.

California Water Data Library, 2019, http://www.water.ca.gov/waterdatalibrary: accessed in July.

Dibblee, T.W., and Minch, J.A., 2008, Geologic Map of the Coyote Wells & Heber 15 Minute Quadrangles, Imperial County, California, Scale 1:62,500.

Historic Aerials, 1953-2012, Aerial Photographs, http://www.historicaerials.com/: accessed in July.

Jennings, C.W. and Bryant, W.A., 2010, Fault Activity Map of California and Adjacent Areas: California Division of Mines and Geology, California Geologic Data Map Series, Map No. 6, Scale 1:750,000.

Landmark, 2016, Geotechnical Report, New Turbine Generators and Cooling Tower, Heber 1 Geothermal Plant, Heber, California: dated September.

Ninyo & Moore, 2019, Proposal for Geology and Soils Evaluation, Heber 1 Geothermal Expansion Project, Imperial County, California, Proposal No. P02-01673a: dated March 27.

Norris, R.M. and Webb, R.W., 1990, Geology of California: John Wiley & Sons.

Ormat, 2018, Heber Repowering, General Arrangement Power Plant Map Options "D" & "E": dated August 30.

SEAOC/OSHPD, 2019, Seismic Design Maps, https://seismicmaps.org/: accessed in June.

United States Department of Agriculture (USDA), 2019, Web Soil Survey, https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm: accessed in July.

United States Geologic Survey, 1957, Heber 15 Minute Quadrangle, Imperial County, California, Scale 1:62,500.

United States Geological Survey, 2019, 2008 National Seismic Hazard Maps – Fault Parameters; http://geohazards.usgs.gov/efusion/hazardfaults_search/hf_search_main.efm.

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FIGURES

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NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE. | SOURCE: ESRI WORLD TOPO, 2017

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FIGURE 1

SITE LOCATION

HEBER 1 REPOWER PROJECT
IMPERIAL COUNTY, CALIFORNIA

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Geotechnical & Environmental Sciences Consultants

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LEGEND

SITE BOUNDARY

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NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE. | SOURCE: GOOGLE EARTH, 2017

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FIGURE 2

AERIAL SITE PLAN

HEBER 1 REPOWER PROJECT
IMPERIAL COUNTY, CALIFORNIA

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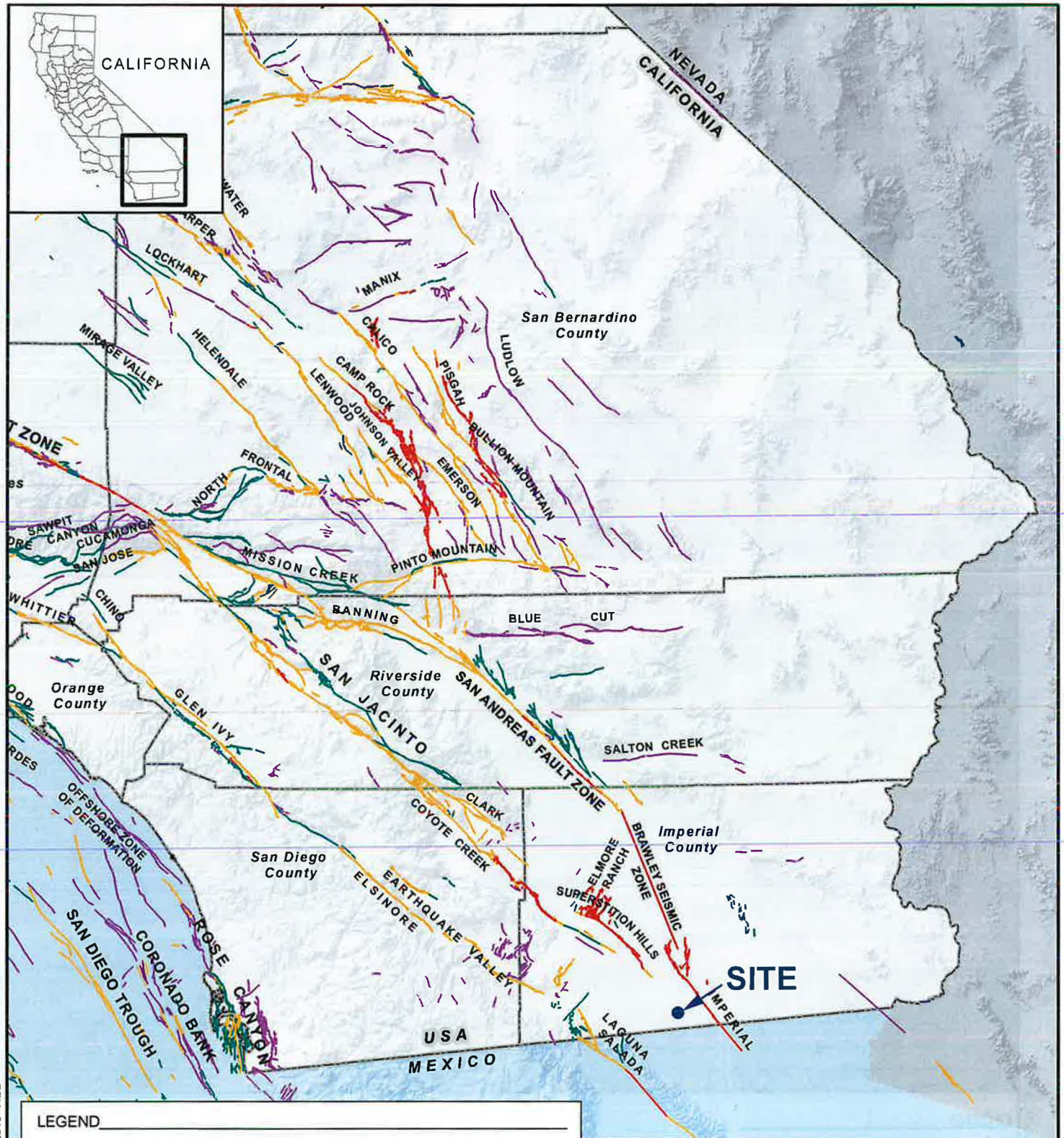

LEGEND

CALIFORNIA FAULT ACTIVITY

- HISTORICALLY ACTIVE
- HOLOCENE ACTIVE
- LATE QUATERNARY (POTENTIALLY ACTIVE)
- QUATERNARY (POTENTIALLY ACTIVE)
- STATE/COUNTY BOUNDARY

SOURCE: U.S. GEOLOGICAL SURVEY AND CALIFORNIA GEOLOGICAL SURVEY, 2006, QUATERNARY FAULT AND FOLD DATABASE FOR THE UNITED STATES.

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NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE.

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FIGURE 3

FAULT LOCATIONS

HEBER 1 REPOWER PROJECT
IMPERIAL COUNTY, CALIFORNIA

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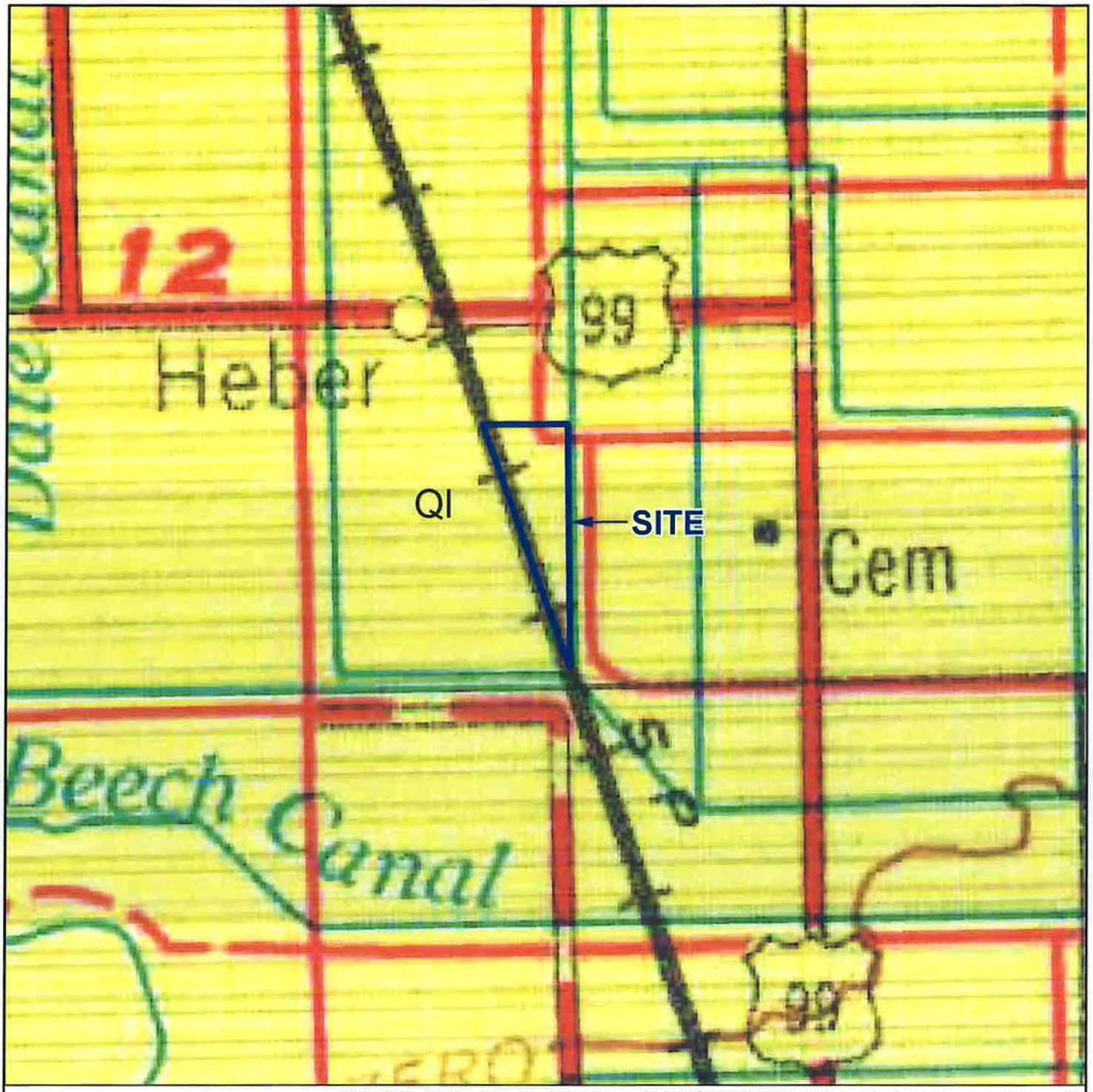

REFERENCE: STRAND, R.G., 1962, GEOLOGIC MAP OF CALIFORNIA, OLAF P. JENKINS EDITION, SAN DIEGO - EL CENTRO SHEET.

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NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE.

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FIGURE 4

GEOLOGY

HEBER 1 REPOWER PROJECT
IMPERIAL COUNTY, CALIFORNIA

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APPENDIX A

Photographs

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Photograph 1: View looking north from the south end of the project site.



Photograph 2: View of the south end of the existing ponds.

FIGURE A-1

PHOTOGRAPHS

HEBER 1 REPOWER PROJECT
IMPERIAL COUNTY, CALIFORNIA

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Photograph 3: **View of the berm and associated piping between the northern and southern ponds.**



Photograph 4: **View of the north end of the existing ponds.**

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APPENDIX G – AIR QUALITY ANALYSIS SUMMARY

AIR SCIENCES INC.

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TECHNICAL MEMORANDUM

AIR QUALITY ANALYSIS SUMMARY FOR THE ORMAT HEBER 1 RE-POWER PROJECT

PREPARED FOR:	Corinne Lytle Bonine, PMP, Chambers Group
PREPARED BY:	Joel Firebaugh, Air Sciences Inc.
PROJECT NO.:	346-1-1
COPIES:	Melissa Wendt, ORMAT Nevada Inc.
DATE:	December 15, 2020

ORMAT Nevada Inc. (ORMAT) proposes a Re-Power Project at its Heber 1 facility in Imperial County, CA which will take the existing dual-flash steam turbine generator out of service and install two new ORMAT Energy Converter (OEC) geothermal power generation units. In addition, OEC-11 and OEC-13 will be reconfigured into a combined two-level unit, OEC-11 ITLU. The re-power project will affect air emissions at the facility.

1.0 Project Description

Heber 1 is a geothermal power generation facility located on private lands owned by ORMAT in southern Imperial County. The facility operates under Imperial County Air Pollution Control District (ICAPCD) Permit to Operate (PTO) #1641B-5. Heber 1 currently consists of a dual-flash steam turbine generator with a gross maximum output of rating of 52 megawatts (MW) and four OECs with a gross combined output rating of 30 MW. Net output for the facility is less than 50 MW. The steam turbine generator includes a Regenerative Thermal Oxidizer (RTO) and Caustic Scrubber emission control devices. Ancillary equipment for the facility includes cooling towers, an evacuation skid/vapor recovery maintenance unit (VRMU), motive fluid (MF) storage tanks, and a diesel engine for emergency use.

The proposed development would occur entirely within the existing facility footprint, which is on Assessor's Parcel Number (APN) 054-250-036. The address for Heber 1 is 895 Pitzer Road, Heber, CA 92249.

1.1 Proposed Development

ORMAT intends to shut down the dual-flash steam turbine generator, install two new OECs, and reconfigure two of the existing OECs. The new OECs will use air cooling rather than water cooling for the MF.

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Two cooling towers; high- and low-pressure flash tanks; surface condenser; RTO; and caustic scrubber, which are all part of the steam turbine generator process, will be decommissioned along with the generator. The equipment will be deconstructed within five years per County of Imperial requirements.

The new OECs with air coolers will be constructed to the south of the existing OECs. Site preparation for the installation of the proposed facilities will include leveling the ground surface, excavation, backfill and soil compaction.

ORMAT Energy Converter-1 (OEC-1)

The proposed OEC-1 unit is a two-turbine combined cycle binary unit using isopentane as the motive fluid for the system. This system also consists of a generator, vaporizers, air-cooled condensers, preheaters and recuperators. OEC-1 will primarily be served by a new VRMU for purging and maintenance events. The design capacity for the unit is 19.8 MW gross output.

ORMAT Energy Converter-2 (OEC-2)

The proposed OEC-2 unit is a two-turbine binary unit, operating with isopentane as the motive fluid for the system. This system consists of a generator, two turbines, vaporizers, air-cooled condenser, and preheaters. OEC-2 will primarily be served by the new VRMU for purging and maintenance events. The design capacity for the unit is 17.2 MW gross output.

Air Coolers

Cooling for OEC-1 and OEC-2 will be accomplished without the use of cooling water. The MF will be cooled using air coolers. The air coolers operate by passing the MF through an air heat exchanger with airflow generated by a large fan. There will be three 10-bay air coolers and one 14-bay air cooler. The air coolers will be purged to remove non-condensable gases, and the purge gas will pass through the new VRMU to capture isopentane and VOC emissions before being released to the atmosphere.

ORMAT Energy Converter-11 Integrated Two-Level Unit (OEC-11 ITLU)

OEC-11 is a two-turbine bottoming unit which includes a generator, vaporizer, preheater, and condenser. The existing integrated purging units are no longer used, and purging is accomplished using the VRMU. With the proposed upgrades, OEC-11 will become an integrated two-level unit (ITLU) and will be renamed OEC-11 ITLU. The upgrades include the replacement of one turbine with a new, larger unit plus new vessels associated with the larger turbine. In addition to these changes, OEC-11 will incorporate the condensers that are currently

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part of OEC-13, and the rest of OEC-13 will be decommissioned. The gross output of the new OEC-11 ITLU will be 14.5 MW.

New Evacuation Skid / Vapor Recovery Maintenance Unit (VRMU)

A new VRMU will be used for purging and maintenance operations for OEC-1 and OEC-2. Vapor from the OEC's are passed through a knock-out drum and condenser, which collect the majority of the isopentane and other condensable gases. Condensed isopentane is returned to the MF system, while remaining gases are passed through an activated carbon adsorption filter which removes remaining isopentane vapor and other organics. The overall isopentane vapor recovery efficiency for the VRMU exceeds 99%. The new VRMU is intended to primarily service the new units: OEC-1, OEC-2, and the air coolers. However, all of the OEC units, air coolers, and tanks are interconnected, and the new VRMU may be used with any of the existing units when appropriate based on current operations.

ORMAT will continue to operate its existing VRMU to primarily service OEC-11 ITLU, OEC-12 and OEC-14, and can use it with the new OECs and air coolers if appropriate based on current operations.

Two Additional Isopentane Above Ground Storage Tanks

To support the new OEC units, two new above ground storage tanks for additional isopentane supply will be installed. There are two existing storage tanks at Heber 1. The new tanks will be sited near the new OECs. Each tank, existing or new, has a capacity of 10,000 gallons. Isopentane gases from the tanks are captured and vented to the VRMUs. These tanks typically store fluid only during maintenance operations and remain empty most of the time.

2.0 Existing Air Emissions

The Heber 1 facility is a synthetic minor source of air pollution and operates in compliance with all applicable air quality requirements and its permit to operate (PTO #1641B-5). Air emission sources currently at the facility include the steam turbine generator, OECs, MF storage tanks, cooling towers, VRMU, and an emergency diesel engine.

The Heber 1 dual-flash steam turbine generator consists of a turbine electric generator powered by geothermal fluid. The geothermal fluid is high-temperature liquid brine that is pumped from underground to a series of flash tanks, where lower pressure causes the brine to vaporize. The steam from the flash tanks powers a turbine generator, producing electricity. Downstream of the turbine, the steam flows through a condenser, and non-condensable gases are routed through a regenerative thermal oxidizer (RTO) and caustic scrubber. The RTO and caustic scrubber remove organics and hydrogen sulfide before venting remaining gases to the atmosphere.

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The OECs generate power by taking geothermal energy (e.g. heat) to vaporize liquid isopentane, which is the motive fluid that powers the turbines to create electricity. The primary air pollutant from these units is isopentane, which is a VOC. Isopentane emissions occur due to maintenance, purging, and fugitive leaks. During maintenance, the unit is shut down and the isopentane is evacuated before the system is opened for the necessary work to be performed. To evacuate the system, the liquid isopentane is transferred to storage tanks, and the remaining vapors are passed through the VRMU. The overall recovery rate of isopentane during evacuation is greater than 99%. However, trace quantities of vapors as well as liquid collected at low points in the system where the liquid cannot be completely drained result in VOC emissions when the unit is opened to the atmosphere.

Purging is the process by which impurities are removed from the isopentane closed circuit. Contamination of the isopentane causes operating efficiency losses, so purging is performed on a regular basis. Vapors are passed through the VRMU and the isopentane is collected and returned to the system while other gases are removed.

Fugitive losses of isopentane can occur due to failing seals, valves, flanges, etc.

Current permitted emission limits for the facility are provided in Table 1. In addition to isopentane emissions, there are particulate emissions from the cooling towers as well as NO_X, SO_2, benzene, and H2S emissions from the steam turbine generator. There is a facility-wide annual benzene emission limit of 1.24 tons per year. Emissions from the emergency diesel generator are not explicitly limited in the ATC, however the engine is limited to 40 hours per year for maintenance and testing purposes.

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Table 1. Facility-wide Existing Emission Limits

	Emission Limits (lbs / day)					
Emission Source	**PM_{10}**	**NO_X**	**SO_2**	**Isopentane[1]**	**Benzene**	**H_2S**
Steam Turbine Generator / RTO (normal operation)		11.66	5.03		2.33	2.74
Steam Turbine Generator during RTO maintenance					93.12	250
Steam Turbine Generator Condensate Line					0.75	18.73
OECs & MF Tanks (total)				99.6		
Purging & Fugitive				*59.6*		
Maintenance				*40.0*		
Cooling Towers	4.36					

[1]Isopentane emissions are calculated on a quarterly average basis.

3.0 Method for Predicting Emissions for Proposed Development

The expected changes to emissions from the proposed development include a reduction in emissions for all permitted pollutants except isopentane. The reduction in emissions is due to the decommissioning of the steam turbine generator and ancillary equipment including two cooling towers. Actual isopentane emissions from the OECs are expected to increase but remain within currently permitted limits.

Future potential isopentane emissions were estimated based on actual emissions from the facility for the most recent two-year period of normal operation. Isopentane emissions are related to the size of the system, so emissions were estimated by scaling the previous actual emissions according to the change in MF volume at the facility. The existing four OECs have a combined volume of 96,800 gallons, and the two MF storage tanks have a combined capacity of 20,000 gallons. After the proposed development, the combined volume of the existing and new OECs will be 240,100 gallons, and the total facility isopentane volume including the MF tanks will be 280,100 gallons.

Isopentane emissions were estimated as follows:

- Maintenance and purging emissions were estimated based on the worst-case quarterly emissions for maintenance and purging from two years of on-site data. These emission rates were scaled based on the ratio of the future OEC volume (240,100 gallons) to the existing OEC volume (96,800 gallons).

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- Fugitive emissions were estimated based on the worst-case quarterly emission rate over the two-year period, scaled based on the total system capacity of the system including MF tanks (280,100 gallons proposed versus 116,800 existing).

This emission estimation method is a reasonably conservative estimate (e.g. an overestimation) of future emissions. The new units benefit from improvements in the design and technology that have occurred during the years since the existing units were constructed. These improvements reduce fugitive leaks as well as emissions during MF evacuation for maintenance but are not accounted for in the emission estimate. Additionally, these new units are expected to have lower emissions because the units they are replacing have higher maintenance requirements due to their age.

4.0 Potential Emissions Summary for Proposed Development

Previous actual isopentane emissions, estimated potential emissions, as well as emission limits in PTO #1641B-5 for the Heber 1 facility are given below in Table 2. Note that the estimated emissions for the facility after the proposed development remain below the current permitted emission limits. The estimated emissions are reasonably conservative for the reasons described above.

Table 2. Actual and Potential Emissions for Heber 1 Facility

	Facility Total Emissions	
Isopentane Emissions	**lbs / day**	**tons / year**
Actual Emissions (Q4 2016 – Q3 2018)	33.3	6.1
Estimated Potential Emissions	81.3	14.8
Emissions Increase	48.0	8.8
Current Permit Limit	99.6	
Proposed Permit Limit	99.0	

Air emissions of other pollutants will decrease due to the decommissioning of the steam turbine generator and associated units including the RTO, condensate line, and 2 cooling towers. The proposed updated emission limits for the facility are presented in Table 3.

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Table 3. Heber 1 Proposed Updated Emission Limits

	Emission Limits (lbs / day)	
Emission Source	**PM_{10}**	**Isopentane**
OECs & MF Tanks (total)		99.0
Cooling Towers	3.72	

5.0 Air Quality Protection Measures

ORMAT has implemented measures to limit air emissions at Heber 1. These measures include but are not limited to the following:

- A water truck is used on site to control fugitive dust emissions.
- A five mile per hour speed limit at the site further reduces fugitive dust emissions.
- During windy conditions, additional watering is conducted to minimize wind-blown fugitive dust.
- Equipment is operated according to best practices and maintained according to design specifications.
- The OECs are inspected for leaks using specialized leak detection equipment during every shift, and leaks are repaired quickly.
- Any breakdown resulting in air emissions is reported to ICAPCD and corrected promptly (within 24 hours when possible).
- The VRMU is tested annually to confirm proper function and high isopentane recovery rates.

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APPENDIX H – HAZARDS ASSESSMENT

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ORMAT

ORMAT, HEBER 1
GEOTHERMAL POWER GENERATION FACILITIES
HEBER, CALIFORNIA

Hazard Assessment

Revision	Date	Description
0.0	December 4, 2020	Initial Issue – Modeling Existing and New Storage Vessels

Risk Management Professionals, Inc.
Two Venture Plaza, Suite 500, Irvine, California 92618
Phone: 949-282-0123 – E-mail: Client.Services@RMPCorp.com

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Appendix A: Worst-Case Scenario Calculations

Appendix B: Alternative Case Scenario Calculations

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1.0 FACILITY OVERVIEW

This technical assessment was conducted to fulfill the Hazard Assessment Offsite Consequence Analysis (OCA) requirements of the following regulations:

- 40 CFR §68.65 – Environmental Protection Agency (EPA) "Risk Management Plan (RMP)"[1]
- 19 CCR 2750.1 to 2750.9 – California Code of Regulation "California Accidental Release Prevention (CalARP) Program"[2]

This assessment is completed for the **Ormat– Heber 1 Geothermal Complex** Facility located in Heber, California. The facility's location at 895 Pitzer Road, Heber, CA 92249 is illustrated in Figure 1 below. The blue markers depict the locations of the two existing 10,000-gallon vessels and red markers for two new 10,000-gallon isopentane vessels that are being added to the facility as part of the Heber 1 Repower Project.

Figure 1: Aerial View of the Facility Location



The following page presents a closer view of the facility's storage vessel locations, as well as a table displaying the approximate location of the 4 storage vessels.

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Figure 2: Aerial View of the Storage Vessel Locations

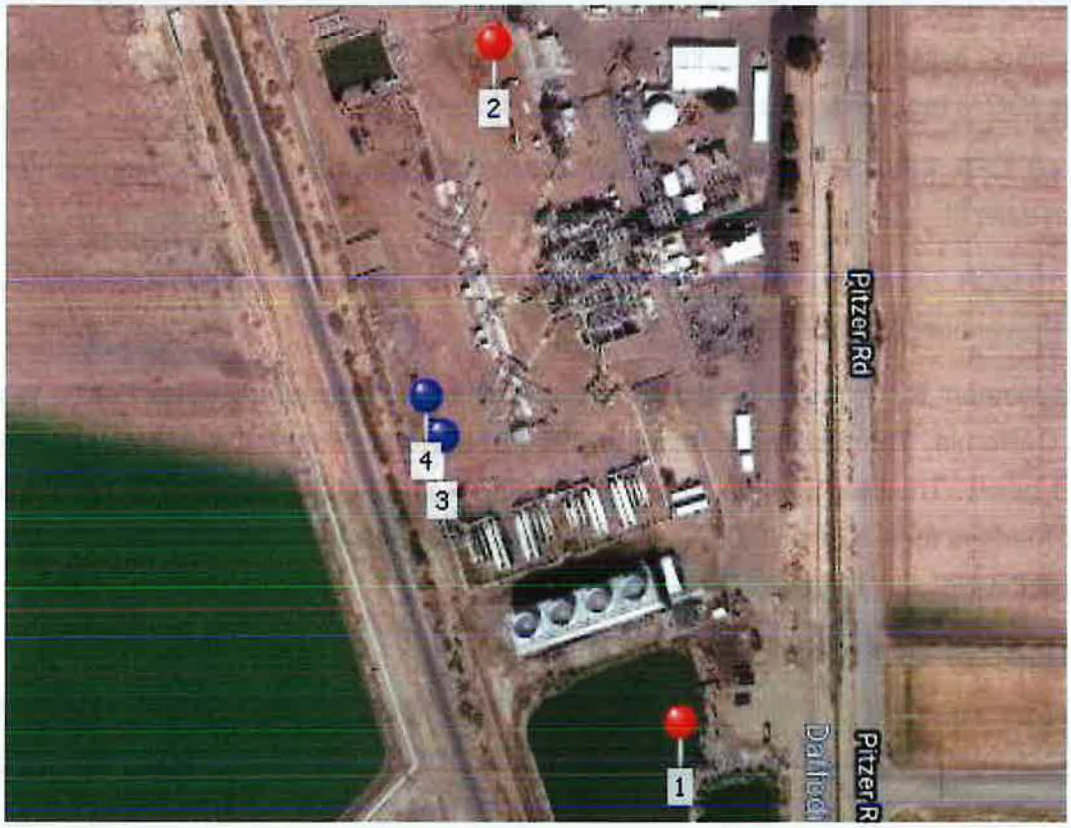

Table 1: Ormat—Heber 1 Storage Vessel Coordinates

COVERED PROCESS	FORMAT	LATITUDE	LONGITUDE
Proposed Isopentane Vessel 1	Decimal Degrees	32.712731°	-115.517670°
Proposed Isopentane Vessel 2	Decimal Degrees	32.715359°	-115.518536°
Existing Isopentane Vessel 3	Decimal Degrees	32.713841°	- 115.518776°
Existing Isopentane Vessel 4	Decimal Degrees	32.713999°	- 115.518851°

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2.0 COVERED PROCESS

The Ormat – Heber 1 Geothermal Complex uses the renewable geothermal resources of the Heber Known Geothermal Resource Area (KGRA) to generate electrical power.

The Heber 1 Geothermal Project produces electricity by using a vaporized motive fluid to spin a turbine connected to a generator. In the Heber 1 binary process, isopentane is the motive fluid.

The covered process at the facility is listed below.

Table 2: Ormat—Heber 1 Geothermal Complex Facility Covered Process

PLANT	REGULATED SUBSTANCE	MAXIMUM INVENTORY IN SINGLE VESSEL (GAL)[A]	TANK TYPE	VESSEL STORAGE INVENTORY
Heber 1	Isopentane	9,000	Storage	10,000-gallon tank

[A] This value represents the maximum amount stored in a single vessel, taking into account administrative controls, which are in place to limit the quantity stored.

This hazard assessment will focus on the regulated substance, isopentane, in Heber 1. The facility is classified as Prevention Program 3 and is regulated by the Environmental Protection Agency's Risk Management Program (EPA RMP) for Chemical Accidental Release Prevention in accordance with the Code of Federal Regulations, Title 40, Chapter I, Subchapter C, Part 68, Subpart B Sections 68.20 to 68.42 (40 CFR §68.20 - 68.42)[1] for isopentane, because it is held on site in excess of 10,000 lbs. The geotechnical power plant utilizes isopentane as the motive fluid in the generation of electricity.

3.0 LEVEL OF CONCERN

To address potential health effects for the worst-case release scenario, the following are the key endpoints of concern for the EPA RMP as defined in Title 40 CFR Section 68.22(2):

(i) Explosion. An overpressure of 1 psi.

(ii) Radiant heat/exposure time. A radiant heat of 5 kW/m^2 for 40 seconds.

(iii) Lower flammability limit. A lower flammability limit as provided in NFPA documents or other generally recognized sources.

The distance from the point of release to the endpoint identified above defines a radius circle of concern for which consequences are reported in the Risk Management Plan.

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4.0 WORST-CASE SCENARIO

The US EPA RMP determines the worst-case release quantity in Title 40 CFR Part 68.25(b) as follows:

> *The worst-case release quantity shall be the greater of the following:*
>
> *(1) For substances in a vessel, the greatest amount held in a single vessel, taking into account administrative controls that limit the maximum quantity;*
>
> *(2) For substances in pipes, the greatest amount in a pipe, taking into account administrative controls that limit the maximum quantity.*

Given the substance released is a flammable, the US EPA RMP gives further guidelines in 68.25 (f):

> *Worst-Case scenario-flammable liquids. The owner or operator shall assume that the quantity of the substance, as determined under paragraph (b) of this section and the provisions below, vaporizes resulting in a vapor cloud explosion. A yield factor of 10 percent of the available energy released in the explosion shall be used to determine the distance to the explosion endpoint if the model used is based on TNT equivalent methods.*
>
> *(1) For regulated flammable substances that are normally liquids at ambient temperature, the owner or operator shall assume that the entire quantity in the vessel or pipe as determined under paragraph (b) of this section, is spilled instantaneously to form a liquid pool. For liquids at temperatures below their atmospheric boiling point, the volatilization rate shall be calculated at the condition specified in paragraph (d) of this section.*
>
> *(2) The owner or operator shall assume that the quantity which becomes vapor in the first 10 minutes is involved in the vapor cloud explosion.*

Furthermore, vapor cloud explosions are considered a conservative analysis as Chapter 4: OCA of the General Risk Management Program Guidance states:

> *As in the case of the worst-case release analysis for toxic substances, the worst-case distance to the endpoint for flammable substances is based on a number of very conservative assumptions. Release of the total quantity of a flammable substance in a vessel or pipe into a vapor cloud generally would be highly unlikely. Vapor cloud explosions are also unlikely events; in an actual release, the flammable gas or vapor*

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released to air might disperse without ignition, or it might burn instead of exploding, with more limited consequences. The endpoint of 1 psi is intended to be conservative and protective; it does not define a level at which severe injuries or death would be commonly expected. An overpressure of 1 psi is unlikely to have serious direct effects on people; this overpressure may cause property damage such as partial demolition of houses, which can result in injuries to people, and shattering of glass windows, which may cause skin laceration from flying glass.

To develop the worst-case scenario, the largest storage vessel was selected. As stated in 19°CCR §2750.3, the worst-case release quantity is the greatest amount held in a single vessel, taking into account inventory procedures and limits.

The Areal Locations of Hazardous Atmospheres (ALOHA)[3] modeling software was used to determine the distance to the endpoint for the worst-case release scenario analysis. The vulnerability zone resulting from this analysis was then reviewed. A vulnerability zone is defined as a circle whose center is the point of release and its radius is the length of the endpoint, which is predicted by the dispersion model (e.g., ALOHA).

4.1 Worst-Case Scenario Selection Process

The process of worst-case release scenario identification is summarized as follows. Figure 3 on the following page depicts the steps in this process.

- **Inventory Calculation**: The first step was to perform the inventory calculations for the 10,000-gallon storage vessels in the covered units and systems.
- **Screening Analysis**: The 10,000-gallon isopentane storage vessels' location was screened. ALOHA modeling software was used to model the scenario and determine the dispersion endpoints for the worst-case release scenario. This was performed to determine the vulnerability zone associated with the worst-case release scenario.
- **Review of the Vulnerability Zone**: The vulnerability zone resulting from the previous step was reviewed and is representative for the plant's worst-case scenario.
- **Worst-Case Analysis**: To document the worst-case scenario, the potential public receptors within the vulnerability zone were identified. All modeling inputs, calculations and assumptions are documented.

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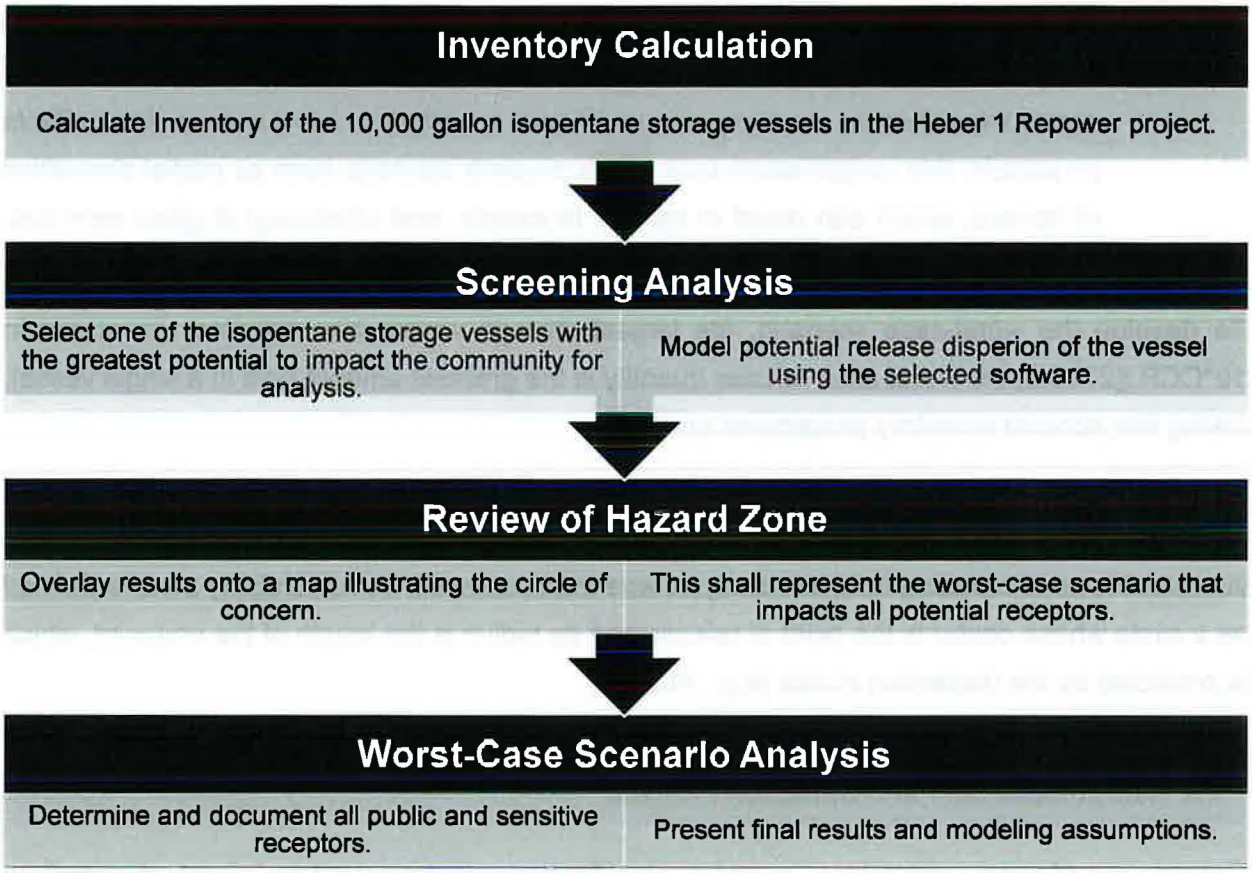
Figure 3: Worst-Case Scenario Selection Process



4.2 Flammable Release Potential Consequences

Several possible consequences of releases of flammable substances are discussed below. It should be noted that the following possible consequences apply to not only worst-case release analysis.

- **Flash Fire**. This event may result from dispersion of a flammable vapor cloud and ignition of the cloud following dispersion. Such a fire could flash back and could represent a severe heat radiation hazard to anyone in the area of the cloud. The lower flammability limit (LFL) endpoint, specified in the rule, would be appropriate for flash fires (vapor cloud fires).
- **Pool Fire**. Spill of a liquid whose boiling point is above ambient temperature may form a liquid pool, which could ignite and form a pool fire. The applicable endpoint specified in the rule is the heat radiation level of 5 kW/m^2.

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- **BLEVE.** A BLEVE (Boiling Liquid Expanding Vapor Explosion) is a potential release scenario associated with a large quantity of flammable materials kept at below their boiling points. A BLEVE that may lead to a fireball could produce intense heat. This event may occur if a vessel containing flammable material ruptures as a result of exposure to fire. Heat radiation from the fireball is the primary hazard and vessel fragments and overpressure from the explosion are generally considered unlikely. To estimate the distance to a radiant heat level that can cause second degree burns (a heat "dose" equivalent to the specified radiant heat endpoint of 5 kW/m^2 for 40 seconds). Consistent with the EPA's "Risk Management Program Guidance for Offsite Consequence Analysis" published guidance, BLEVEs are generally considered unlikely events and were therefore not considered a probable event for the Offsite Consequence Analysis.
- **Vapor Cloud Explosion.** For a vapor cloud explosion to occur, rapid release of a large quantity, turbulent conditions (caused by a turbulent release or congested conditions in the area of the release, or both), and other factors are generally necessary. The endpoint for vapor cloud explosions is 1 psi.
- **Jet Fire.** This may result from the puncture or rupture of a tank or pipeline containing a compressed or liquefied gas under pressure. The gas discharging from the hole can form a jet that "blows" into the air in the direction away from the hole; the jet then may ignite. Jet fires could contribute to BLEVEs and fireballs if they impinge on tanks of flammable substances. A large horizontal jet fire may have the potential to pose an offsite hazard.

For the flammable worst-case release scenario, a vapor cloud explosion was the most appropriate consequence, as defined by the EPA RMP rule.

4.3 Endpoints

As mentioned previously, for flammable materials, the endpoints specified by the EPA RMP are:

- Overpressure of 1 pound per square inch (psi) for vapor cloud explosions
- Radiant heat of 5 kilowatts per square meter (kW/m^2) for jet fires
- Lower flammability limit (LFL) for flash fires

The rule specifies endpoints for fires based on the heat radiation level that may cause second degree burns from a 40-second exposure and the LFL, which is the lowest concentration in air at which a substance will burn. For a vapor cloud explosion, the endpoint is 1 psi, which is the force

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to cause partial demolition of houses with potential serious injuries to people, or shattering glass windows with potential skin laceration from flying glass.

4.4 Modeling Assumptions

The EPA RMP regulation imposes several assumptions that were adhered to when performing the offsite consequence analysis of the worst-case release scenario. These are conservative assumptions for weather and release conditions. The distance to the endpoint estimated under worst-case conditions provides an estimate for the maximum possible area that might be affected by these unlikely conditions. It should be noted that EPA's intention for the vulnerability zone representing a worst-case release scenario is to provide a basis for discussion among the regulated industry, emergency responders, and the public, rather than a basis for any specific actions. The EPA RMP regulations, in conjunction with the RMP Guidance for Offsite Consequence Analysis[4], were used to model the worst-case release scenario and prescribe these atmospheric parameters.

- **Meteorological Parameters:** For the worst-case release analysis, the following assumptions were entered into ALOHA, as specific by the EPA RMP regulations / RMP Guidance for Offsite Consequence Analysis.
  - *Atmospheric stability*: F stability (very stable conditions)
  - *Wind speed:* 1.5 meters/second
  - *Ambient Temperature:* 77 °F
  - *Relative Humidity*: The typical relative humidity at the stationary source, which is 50%
- **Dispersion & Impact Modeling Parameters:**
  - *Height of Release:* Ground level, per EPA Rule requirement
  - *Surface Roughness:* Open Country, meaning there are no obstacles in the immediate area; obstacles including buildings or trees, as defined by the EPA RMP regulations
  - *Vapor Cloud Explosion Impact:* A Vapor Cloud Explosion has been modeled with an endpoint of 1 psi

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- **Mitigation Systems:** Once a release has occurred, mitigation systems are means (structures, equipment, or activities) that help minimize the transport of material to the atmosphere. Mitigation systems can be characterized as passive or active systems.
    - *Passive mitigation systems do not require activation, an energy source, or movement of components to perform their intended function*
    - *Active mitigation systems do require activation, an energy source, and/or movement of components to perform their intended function*

It should be emphasized that the effectiveness of mitigation systems was taken into account when these systems were considered in the offsite consequence analysis. The effectiveness is determined based on how well the systems are designed and their abilities to respond reliably upon demand. The rule permits consideration of only passive mitigation systems for the worst-case release analysis provided that the systems are capable of withstanding the event triggering the release scenario and would still function as intended. For the worst-case release scenario, the secondary containment area built with concrete was considered as a passive mitigation measure in the offsite consequence analysis.

4.5 Worst-Case Release Scenario

One worst-case scenario (WCS) was developed for the facility. For the worst-case release scenario, the existing and new 10,000-gallon storage vessels containing isopentane at the Ormat – Heber 1 Geothermal Complex Facility were considered. The storage vessel is capable of storing a maximum of 9,000 gallons of isopentane, taking into account administrative controls. According to the Chevron Philips Chemical Company safety data sheet, the density of isopentane is 5.14 lbs./gal, which yields a total mass of 46,260 pounds of isopentane held in the storage vessel. The worst-case scenario considers the release of the entire contents of one of the 10,000-gallon isopentane storage vessels, which would result in a release of the entire contents of the vessel, into the secondary containment area. All dispersion modeling parameters utilized in the worst-case release scenario modeling is listed in Table 3 below. A summary of the scenario is presented in Table 4. Appendix A of this report provides a detailed description of the worst-case release scenario, ALOHA modeling output, MARPLOT 5.1.1[5] output with population estimates, and maps displaying the vulnerability zone for a release from each tank, denoted by a circle superimposed on the map.

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Table 3: Worst Case Release Scenario Dispersion Modeling Parameters

PARAMETER	INPUT VALUE	NOTES
Isopentane Input Parameters		
Quantity Released	9,000 gallons	Entire contents of isopentane storage vessel assumed to be released and form an evaporating puddle in secondary containment area, which is involved in a vapor cloud explosion.
Meteorological Parameters		
Atmospheric Stability	F stability	As per 40 CFR §68.22 (b), "For the worst-case release analysis, the owner or operator shall use a wind speed of 1.5 meters per second and F atmospheric stability class"
Wind Speed	1.5 m/s	
Wind Direction	W	Wind Direction from the west based on the Wind Rose plot for Imperial, CA (closest city with wind rose plot available). Since the endpoint distance and circle of interest is presented in this report, the wind direction does not impact the analysis/distance to endpoint and instead is a generic input that ALOHA modeling software requires.
Measurement Height above Ground	10 m	Wind speed is assumed to be measured at this elevation, as this is the standard height at which the National Weather Service usually reports wind speed.
Ambient Temperature	77°F (25°C)	As per 40 CFR §68.22 (c), "An owner or operator using the RMP Offsite

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PARAMETER	INPUT VALUE	NOTES
Relative Humidity	50%	Consequence Analysis Guidance may use 25 °C and 50 percent humidity as values for these variables"
Ground temperature	122ºF	As per 40 CFR §68.22 (g), "for worst case, [it] shall be considered to be released at the highest daily maximum temperature, based on data for the previous three years appropriate for the stationary source." Temperature data was sourced from Weather Underground [6] for Imperial, CA (closest available city with temperature history) and the highest daily maximum temperature from the previous 3 years was identified.
Dispersion and Impact Modeling Parameters		
Height of Release	Ground level	As per 40 CFR §68.22(d), "you must assume a ground level release" and as per the RMP Offsite Consequence Analysis Guidance Document, "this guidance assumes a ground-level release"
Topography/Surface Roughness	Open Country	Open Country, meaning there are no obstacles in the immediate area; obstacles including buildings or trees, as defined by the EPA RMP regulations.

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PARAMETER	INPUT VALUE	NOTES
Level of Congestion	Congested	The level of congestion was assumed to be congested, which is a conservative assumption since greater turbulence (greater congestion) allows the flame front to accelerate, thereby generating a more powerful blast wave (i.e., greater overpressure). The immediate area within the facility is also considered to be congested with piping and equipment.
Isopentane Mitigation System		
Passive Mitigation	Secondary Containment Area	The volume released from a single Isopentane Storage Vessel is assumed to release into a concrete secondary containment area, which is contained around each storage vessel. The secondary containment area dimensions are 40 ft length, 12 ft width, 3.5 ft depth (Surface area = 480 ft^2).

Table 4: Worst-Case Scenario Results Summary

RELEASE SCENARIO	REGULATED SUBSTANCE	ENDPOINT	ENDPOINT DISTANCE
WCS: 10,000-gallon Isopentane Storage Vessel Release	Isopentane	Overpressure of 1 psi	92 yd / 276 ft / 0.052 mi

4.6 Worst-Case Analysis Considerations

The worst-case distances to the flammable endpoints are based on a number of very conservative assumptions. The following summarizes the assumptions:

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- The likelihood of a vessel rupture is extremely low. As a result, the release of entire inventory of a vessel is an unrealistic assumption.
- An overpressure of 1 psi is unlikely to have serious direct effects on people. This overpressure may cause property damage such as partial demolition of houses, which can result in injuries to people, and shattering of glass windows, which may cause skin laceration from flying glass.

5.0 ALTERNATIVE RELEASE SCENARIO

Alternative scenarios are potential releases that may result in consequences whose footprints represented by the endpoints could extend beyond the plant boundary. For a release case to be considered an alternative scenario, two conditions must be met:

1. The likelihood of the alternative release scenarios should be higher than that of the worst-case release scenarios.
2. The distance to endpoint from an alternative release scenario must go beyond the plant fence line.

As put forth in Title 40 CFR Section 68.28(a):

> *The owner or operator shall identify and analyze…at least one alternative release scenario to represent all flammable substances held in a covered process*

Title 40 CFR Section 68.28 (b)(2) defines the scenarios typically considered, but not limited to, the following:

> *(i) Transfer hose releases due to splits or sudden hose uncoupling;*
>
> *(ii) Process piping releases from failures at flanges, joints, welds, valves and valve seals, and drains or bleeds*
>
> *(iii) Process vessel or pump release due to cracks, seal failure, or drain, bleed, or plug failure; and*
>
> *(iv) Vessel overfilling and spill, or over pressurization and venting through relief valves or rupture disks.*
>
> *(v) Shipping container mishandling and breakage or puncturing leading to a spill.*

For alternative release scenarios, active mitigation systems, such as interlocks, shutdown systems, pressure relieving devices, flares, emergency isolation systems, and fire water and deluge systems, as well as passive mitigation systems are considered, if they were applicable. In order to be credited, the mitigation systems considered must be capable of withstanding the event that triggers the release while remaining functional.

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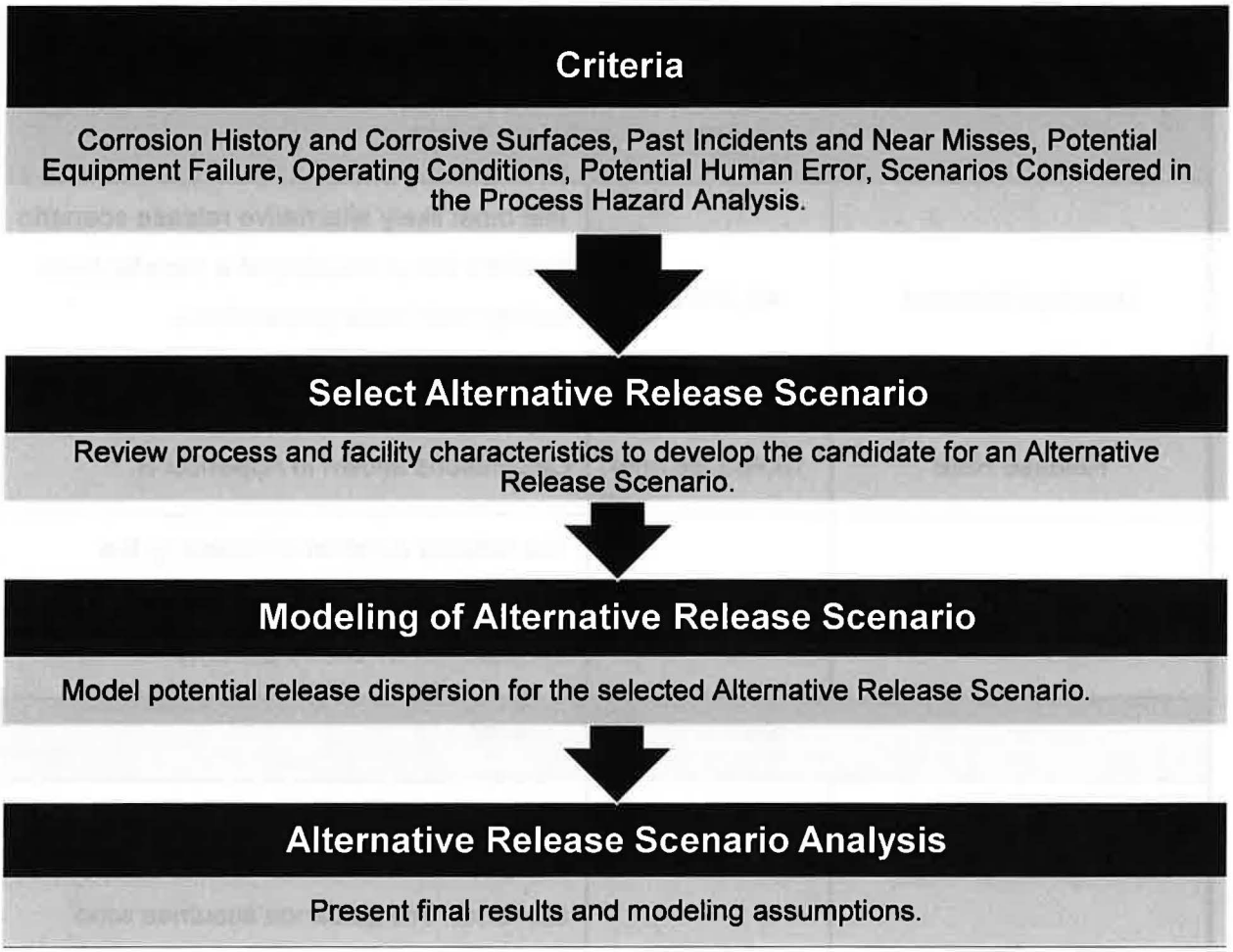
5.1 Alternative Release Scenario Selection Process

The process of alternative release scenario identification is summarized as follows and depicted in Figure 4.

- **Selection of Candidate Alternative Release Scenario:** The process of alternative release scenario identification was initiated with the review of the worst-case release case. Additional vessels, containing various quantities of regulated substances, which considered having a higher likelihood of release, were then reviewed. In this process, all covered processes were reviewed and the candidate case for the alternative release scenario analysis was subsequently selected. The following criteria was utilized to identify the potential scenario:
    - Corrosion history and corrosive services
    - Past incidents and near misses
    - Potential equipment failure
    - Operating conditions
    - Potential for human error
    - Consequences considered in the unit Process Hazard Analysis
- **Analysis of the Selected Alternative Release Scenario:** Once the candidate scenario was selected, ALOHA was utilized to model the selected scenario. The vulnerability zone resulting from the analysis of the alternative release scenario was then reviewed. The release duration was limited by the length of time to release the entire contents of the single Isopentane Storage Vessel.
- **Alternative Release Scenario**: The alternative release scenario for the flammable substance was selected and modeled to evaluate potential offsite impacts. Documentation of this scenario included modeling calculations, parameters, and assumptions.

Figure 4: Alternative Release Scenario Selection Process



5.2 Modeling Assumptions

The EPA RMP regulation does not impose any mandatory assumptions for the OCA of the alternative release scenario. All dispersion modeling parameters utilized in the alternative release scenario modeling are listed in Table 5. For the alternative release scenario, a release due to a break in the product transfer hose connection during truck loading has been considered. Appendix B of this report provides a detailed description of the alternative release scenario, ALOHA modeling output, MARPLOT 5.1.1 output with population estimates, and a map with the vulnerability zone denoted by a circle superimposed on the map.

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Table 5: Alternative Release Scenario Dispersion Modeling Parameters

Parameter	Input Value	Notes
Isopentane Input Parameters		
Quantity Released	46,260 lbs.	The most likely alternative release scenario involves the uncoupling of a transfer hose during truck loading operations. Calculations shown in Appendix B.
Release Rate	19,468 lbs./min	Calculations shown in Appendix B.
Release Duration	2.4 mins	The release duration is limited by the quantity stored in a single Isopentane Storage Vessel (9,000 gallons).
Meteorological Parameters		
Atmospheric Stability	D stability	As per EPA RMP Offsite Consequence Analysis Guidance, for an alternative scenario, "this guidance assumes wind speed of 3 meters per second and D stability"
Wind Speed	3.0 m/s	
Wind Direction	W	Wind Direction from the west based on the Wind Rose plot for Imperial, CA (closest city with wind rose plot available). Since the endpoint distance and circle of interest is presented in this report, the wind direction does not impact the analysis/distance to endpoint and instead is a generic input that ALOHA modeling software requires.

Parameter	Input Value	Notes
Measurement Height above Ground	10 m	Wind speed is assumed to be measured at this elevation, as this is the standard height at which the National Weather Service usually reports wind speed.
Ambient Temperature	77°F (25°C)	As per EPA RMP Offsite Consequence Analysis Guidance, for an alternative scenario, "this guidance assumes 25°C and 50 percent humidity"
Relative Humidity	50%	
Dispersion and Impact Modeling Parameters		
Height of Release	Ground Level	As per EPA RMP Offsite Consequence Analysis Guidance, for an alternative scenario, "this guidance assumes a ground-level release"
Topography/Surface Roughness	Open Country	Open Country, meaning there are no obstacles in the immediate area; obstacles including buildings or trees, as defined by the EPA RMP regulations.
Level of Congestion	Congested	The level of congestion was assumed to be congested, which is a conservative assumption since greater turbulence (greater congestion) allows the flame front to accelerate, thereby generating a more powerful blast wave (i.e., greater overpressure). The immediate area within the facility is also considered to be congested with piping and equipment.

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Parameter	Input Value	Notes
Isopentane Mitigation System		
Passive Mitigation	Secondary Containment Area	The amount released from the alternative release scenario is assumed to release into a concrete secondary containment area, which is contained around each storage vessel. The secondary containment area dimensions are 40 ft length, 12 ft width, 3.5 ft depth (Surface area = 480 ft^2).
Active Mitigation	None	

5.3 Alternative Release Scenario

A summary of the alternative release scenario is presented in Table 6. Appendix B of this report provides a detailed description of the alternative release scenario, ALOHA modeling outputs, MARPLOT 5.1.1 outputs with population estimates, and a map with circles representing the vulnerability zones.

Table 6: Alternative Release Scenario Result Summary

RELEASE SCENARIO	REGULATED SUBSTANCE	ENDPOINT	ENDPOINT DISTANCE
ARS: Transfer Hose uncoupling from 10,000-gallon Isopentane Storage Vessel during Truck Loading Operations	Isopentane	Overpressure of 1 psi	57 yd / 171 ft / 0.032 mi

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5.4 Alternative Release Analysis Considerations

Typically, the same conservative assumptions apply for the alternative release analysis as for the worst-case release analysis. Although the alternative release scenario is intended to be more likely than the worst-case release scenario, the analysis of the alternative release scenario should not be expected to provide a realistic estimate of an area in which off-site impact may occur. The same conservative endpoints have been used for both the worst-case and the alternative release analysis. These endpoints are intended to represent exposure levels below which most members of the public will not experience serious long-term health effects.

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6.0 OFFSITE IMPACTS

A summary of the off-site impacts from an accidental release, including population and sensitive receptors, is discussed in the following sub-sections.

6.1 Impacted Population

In order to determine the impacted population around the facility, the potential for exposure within the endpoint was determined. The furthest endpoint distances reached by the worst-case scenario and alternative release scenario along with the estimated impacted population are summarized in Table 7:

Table 7: Impacted Population for OCA Scenarios

SCENARIO	ENDPOINT DISTANCE	ESTIMATED IMPACTED POPULATION
WCS: 10,000-gallon Isopentane Storage Vessel Release	92 yd / 276 ft / 0.052 mi	0
ARS: Transfer Hose uncoupling from 10,000-gallon Isopentane Storage Vessel during Truck Loading Operations	57 yd / 171 ft / 0.032 mi	0

The population was estimated using 2010 census tract data with the MARPLOT 5.1.1 software. When calculating population densities for large areas that encompass many tracts, the accuracy is rated as good; however, for small areas that encompass only two or three partial tracts, the population data may be skewed due to the unequal distribution within the tract. The use of MARPLOT 5.1.1 is pursuant to guidance endorsed by the US EPA. MARPLOT 5.1.1 requires the latitude and longitude of the facility in order to calculate the population. The latitude and longitude were estimated using Google Earth GPS[7] software and an aerial photo.

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6.2 Offsite Sensitive Receptor Data Sources

Table 8 includes a list of websites and software used to locate offsite sensitive receptors. A few sites will perform a distance search in order to determine the eligibility of a possible receptor. For all other sites, a map interpolation determines whether the receptor falls within the circle of concern.

Table 8: Websites and Software Used

SOURCE	RECEPTORS THIS SOURCE IS USED TO IDENTIFY	METHOD OF DETERMINING ELIGIBILITY
Google Maps[8]	Used to identify all receptors	Distance search in conjunction with a map interpolation
Google Earth	This mapping software is used to locate all receptors. It also incorporates an internet search with the map to locate businesses.	Software will map the location of the receptor.

6.3 Offsite Sensitive Receptors

RMP requirements state that sensitive populations such as schools, hospitals, day-care centers, long-term health care facilities, prisons, residential areas, public use parks/recreational areas, and major commercial facilities, located within the "at risk" area must be identified. These sensitive populations include individuals who could not remove themselves from the exposure area without assistance. The sensitive populations also include industrial installations which may have a hazardous process that cannot be immediately left unattended. According to the EPA's General Risk Management Plan Guidance [9], "The basic test for identifying a public receptor is thus whether an area is a place where it is reasonable to expect that members of the public will routinely gather at least some of the time... Roads and parking lots are not included as such in the definition of 'public receptor.' Neither are places where people typically gather; instead, they are used to travel from one place to another or to park a vehicle while attending an activity elsewhere." Table 9 shows a summary of offsite population receptors and offsite environmental

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receptors for isopentane, within the circle of concern as determined by the worst-case and alternative release scenarios.

Table 9: Summary of Sensitive and Environmental Receptors

RECEPTOR	WCS (0.052 MI)	ARS (0.032 MI)
Population Receptors		
Schools	No	No
Residences	No	No
Hospitals	No	No
Prisons/Correction Facilities	No	No
Recreation Areas	No	No
Major Commercial, Office, or Industrial Areas	No	No
Child Daycare	No	No
Long-term Health Care (e.g., convalescent homes)	No	No
Other (Government Buildings)	No	No
Environmental Receptors		
National or State Parks, Forests, or Monuments	No	No
Officially Designated Wildlife Sanctuaries, Preserves, or Refuges	No	No
Federal Wilderness Areas	No	No
Other (Landmark & Indian Reservations)	No	No

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7.0 WORST-CASE RELEASE AND ALTERNATIVE RELEASE SCENARIO SUMMARY

The following sections outlines a summary of the parameters used for the one worst case release scenario and the one alternative release scenario analyzed for the Heber 1 Repower project.

7.1 Worst-Case Scenario

The worst-case scenario evaluated the release of the entire contents of one of the four 10,000-gallon isopentane storage vessels, containing 9,000 gallons of isopentane. The following table provides a summary of the parameters used for the worst-case scenario and the corresponding inputs.

Table 10: Worst-Case Scenario Parameter/Input Summary

Worst-Case Scenario	
Chemical	Isopentane
Model Used	ALOHA
Scenario	Vapor Cloud Explosion
Quantity Released (gal)	9,000 gallons
Endpoint Used	Overpressure of 1 psi
Distance to Endpoint	92 yd / 276 ft / 0.052 mi
Estimated Residential Population within Distance to Endpoint (numbers)	0
Public Receptors within Distance to Endpoint	
Schools	No
Residences	No
Hospitals	No
Prison/Correctional Facilities	No
Recreational Areas	No
Major Commercial, Office, or Industrial Areas	No
Other	None

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Worst-Case Scenario	
Environmental Receptors within Distance to Endpoint	
National or State Parks, Forests, or Monuments	No
Officially Designated Wildlife Sanctuaries, Preserves or Refuges	No
Federal Wilderness Area	No
Other	No
Passive Mitigation Considered	
Secondary Containment Area	Yes
Other	No

7.2 Alternative Release Scenario

It was determined that a release due to a break in the isopentane transfer hose connection during truck loading, was the most likely release scenario due to human factors associated with manned transfer operations, as well as reliability issues in industry related to hose degradation and coupling failures. The following table provides a summary of the parameters that were used for alternative release scenario and the corresponding inputs.

Table 11: Alternative Release Scenario Parameter/Input Summary

Alternative Release Scenario	
Chemical	Isopentane
Model Used	ALOHA
Scenario	Vapor Cloud Explosion
Quantity Released	46,260 lbs.
Endpoint Used	Overpressure of 1 psi
Distance to Endpoint	57 yd / 171 ft / 0.032 mi
Estimated Residential Population within Distance to Endpoint (numbers)	0

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Alternative Release Scenario	
Public Receptors within Distance to Endpoint	
Schools	No
Residences	No
Hospitals	No
Prison/Correctional Facilities	No
Recreational Areas	No
Major Commercial, Office, or Industrial Areas	No
Other	None
Environmental Receptors within Distance to Endpoint	
National or State Parks, Forests, or Monuments	No
Officially Designated Wildlife Sanctuaries, Preserves or Refuges	No
Federal Wilderness Area	No
Other	No
Passive Mitigation Considered	
Secondary Containment Area	Yes
Other	No
Active Mitigation Considered	
Sprinkler Systems	No
Deluge Systems	No
Water Curtain	No
Excess Flow Valve	No
Other	No

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8.0 FIVE YEAR ACCIDENT HISTORY

There have been no applicable CalARP/RMP/PSM releases of isopentane at the facility within the last five years, therefore, this section is not applicable.

9.0 REFERENCES

1. Code of Federal Regulations (CFR), Title 40, Chapter I, Subchapter C, Part 68, Subpart B, Sections 68.20 to 68.42, "Hazard Assessment"; 2015, January 1.
2. California Code of Regulations (CCR), Title 19, Division 2, Chapter 4.5, Article 4, Sections 2750.1 to 2750.9, "Hazard Assessment"; 2015, January 1.
3. Areal Locations of Hazardous Atmospheres - ALOHA Version 5.4.7, U.S. Environmental Protection Agency, September 2016. http://www2.epa.gov/cameo/aloha-software
4. Risk Management Program Guidance for Offsite Consequence Analysis, U.S. Environmental Protection Agency, March 2009.
5. MARPLOT® 5.1.1 Mapping Software (internet download), National Oceanic and Atmospheric Administration and U.S. Environmental Protection Agency. http://www.epa.gov/osweroe1/content/cameo/marplot.htm. December 2017.
6. Weather History for KIPL (Imperial County Station), Weather Underground, May 11, 2020, https://www.wunderground.com/history/monthly/us/ca/imperial/KIPL
7. Google ™ Earth, version 7.3.2.5776, Google, Inc. (2019)
8. Google ™ Maps, Google, Inc. (2019)
9. General Risk Management Program Guidance – Chapter 2: Applicability of Program Levels, U.S. Environmental Protection Agency, April 2004.

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APPENDIX A
WORST-CASE SCENARIO CALCULATIONS

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WORST-CASE SCENARIO (WCS)

The selected worst-case release scenario analyzes the hypothetical release of the entire contents of any one of the 10,000-gallon isopentane vessels, new or existing. Any one vessel can store up to 9,000 gallons of isopentane, taking into account administrative controls, which are in place to limit the quantity stored in each tank. Per requirement of the EPA rule for flammable substances, it was assumed that the whole quantity is released. The entire quantity is released into the secondary containment area, which is credited as a passive mitigation measure, to form an evaporating puddle, for which the vapors form a vapor cloud. If this vapor cloud ignited, the resultant blast could generate overpressure damage. The secondary containment area dimensions are 40 ft length, 12 ft width, 3.5 ft depth (surface area = 480 ft^2), and it assumed the secondary containment area ground type is concrete. Both the new and existing storage vessels are configured with this secondary containment area.

The ALOHA modeling calculation predicts that the area impacted by the endpoint, which is an overpressure of 1 psi, is a circle with approximately a 92-yard radius (276 ft / 0.052 mi). According to MARPLOT 5.1.1, there are 0 residents and 0 housing units within this vulnerability zone for both vessels. The table and figures on the following pages illustrate the scenario modeling parameter summary, scenario circle for the release, the ALOHA modeling output, as well as the MARPLOT results. These figures demonstrate Ormat's strategic placement of new storage vessels, showing that one explosion and release of all isopentane contents would not affect the other. Each of the new vessels are at least 184 yards (twice the radius of concern) from one another and do not reach any of the two existing vessels. Only vessels 3 and 4 have the potential to experience interacting explosion impacts and this has been addressed with the future implementation of a blast wall. This barrier will serve as a separation mechanism to prevent the explosion area of one vessel from triggering the release and ignition of the other.

Figure 5: WCS ALOHA Modeling Results

```
SITE DATA:
  Location: HEBER, CALIFORNIA
  Building Air Exchanges Per Hour: 0.20 (unsheltered double storied)
  Time: September 21, 2020  1603 hours PDT (using computer's clock)

CHEMICAL DATA:
  Chemical Name: ISOPENTANE
  CAS Number: 78-78-4                    Molecular Weight: 72.15 g/mol
  PAC-1: 3000 ppm    PAC-2: 33000 ppm    PAC-3: 200000 ppm
  LEL: 14000 ppm     UEL: 76000 ppm
  Ambient Boiling Point: 82.1° F
  Vapor Pressure at Ambient Temperature: 0.91 atm
  Ambient Saturation Concentration: 904,803 ppm or 90.5%

ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)
  Wind: 1.5 meters/second from W at 10 meters
  Ground Roughness: open country         Cloud Cover: 5 tenths
  Air Temperature: 77° F
  Stability Class: F (user override)
  No Inversion Height                    Relative Humidity: 50%

SOURCE STRENGTH:
  Evaporating Puddle (Note: chemical is flammable)
  Puddle Area: 480 square feet           Puddle Volume: 9000 gallons
  Ground Type: Concrete                  Ground Temperature: 122° F
  Initial Puddle Temperature: Air temperature
  Release Duration: ALOHA limited the duration to 1 hour
  Max Average Sustained Release Rate: 118 pounds/min
     (averaged over a minute or more)
  Total Amount Released: 4,949 pounds

THREAT ZONE:
  Threat Modeled: Overpressure (blast force) from vapor cloud explosion
  Type of Ignition: ignited by spark or flame
  Level of Congestion: congested
  Model Run: Heavy Gas
  Red    : LOC was never exceeded --- (8.0 psi = destruction of buildings)
  Orange: 52 yards --- (3.5 psi = serious injury likely)
  Yellow: 92 yards --- (1.0 psi = shatters glass)
```


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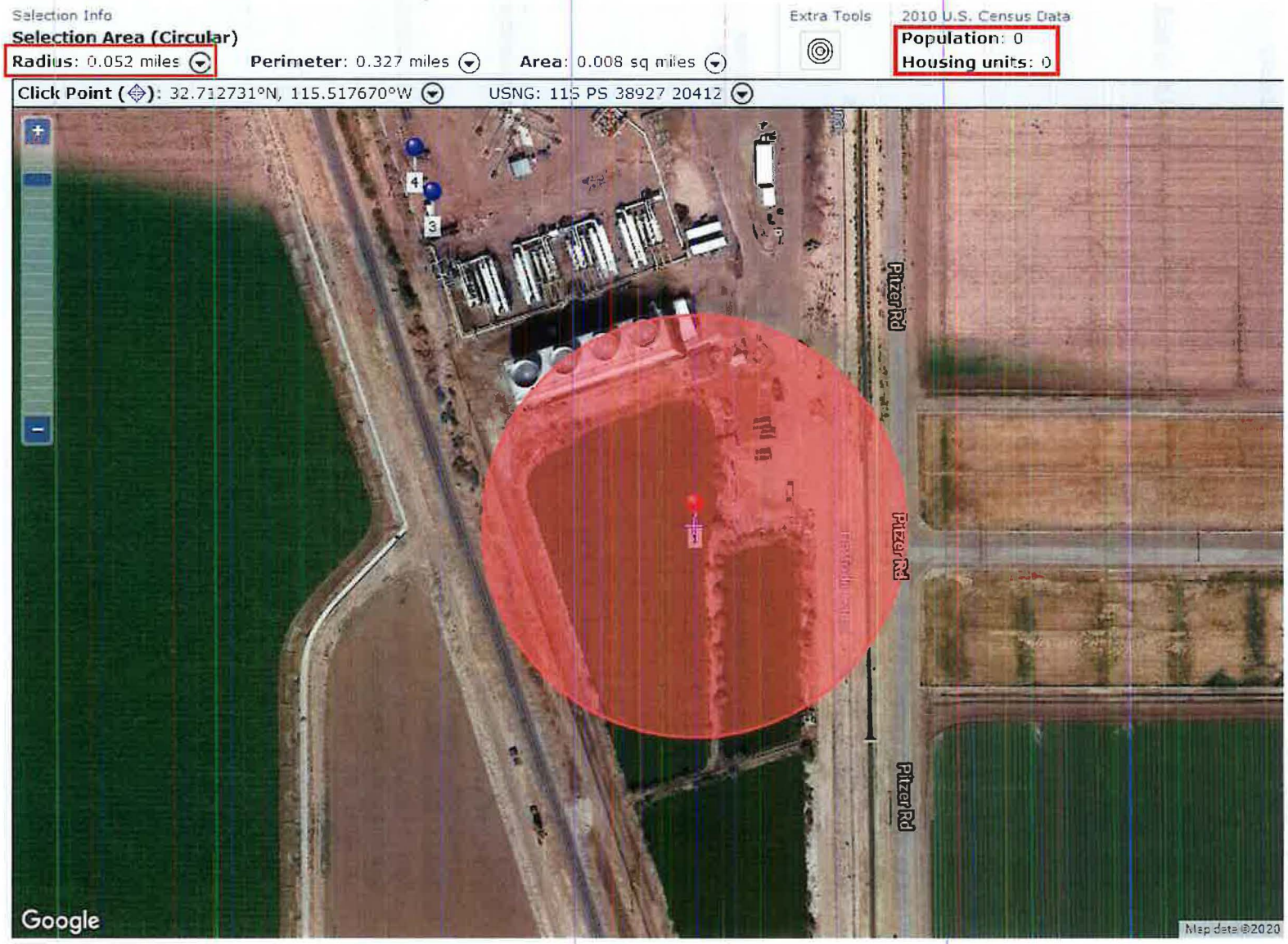
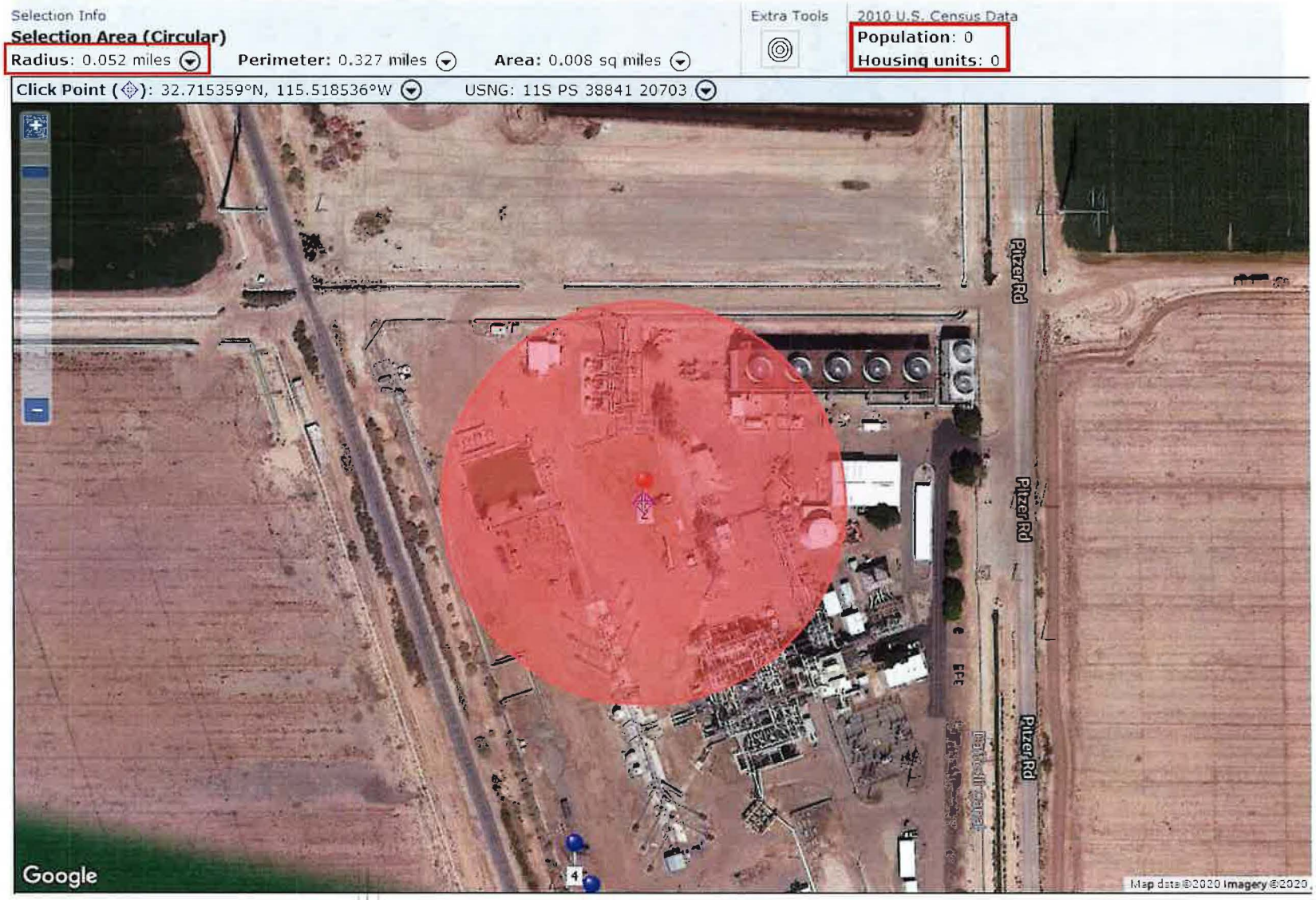
Figure 6: WCS MARPLOT 5.1.1 Map for Isopentane Storage Vessel #1



EEC ORIGINAL PKG

Figure 7: WCS MARPLOT 5.1.1 Map for Isopentane Storage Vessel #2



EEC ORIGINAL PKG

Figure 8: WCS MARPLOT 5.1.1 Map for Isopentane Storage Vessel #3

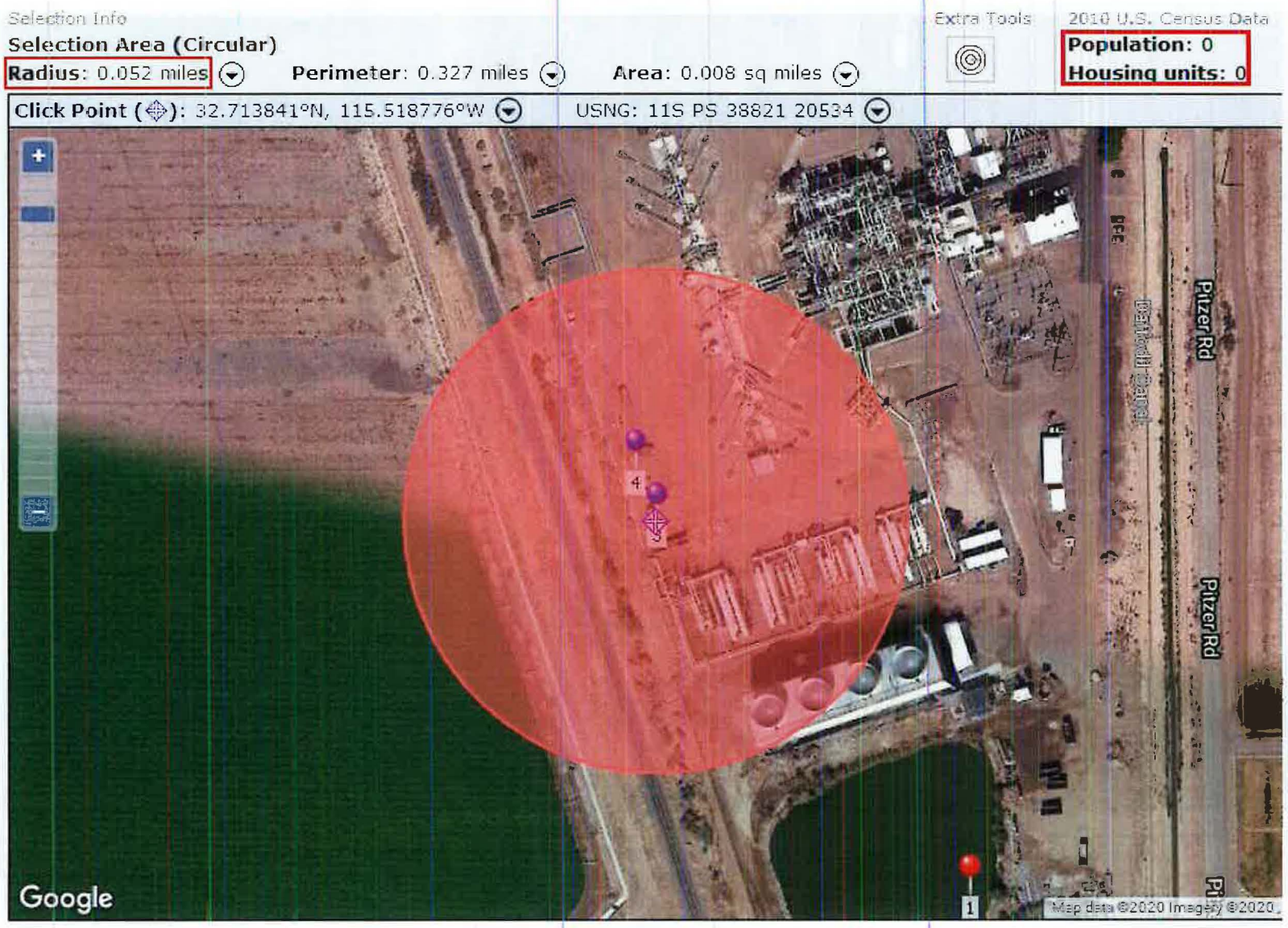


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Figure 9: WCS MARPLOT 5.1.1 Map for Isopentane Storage Vessel #4

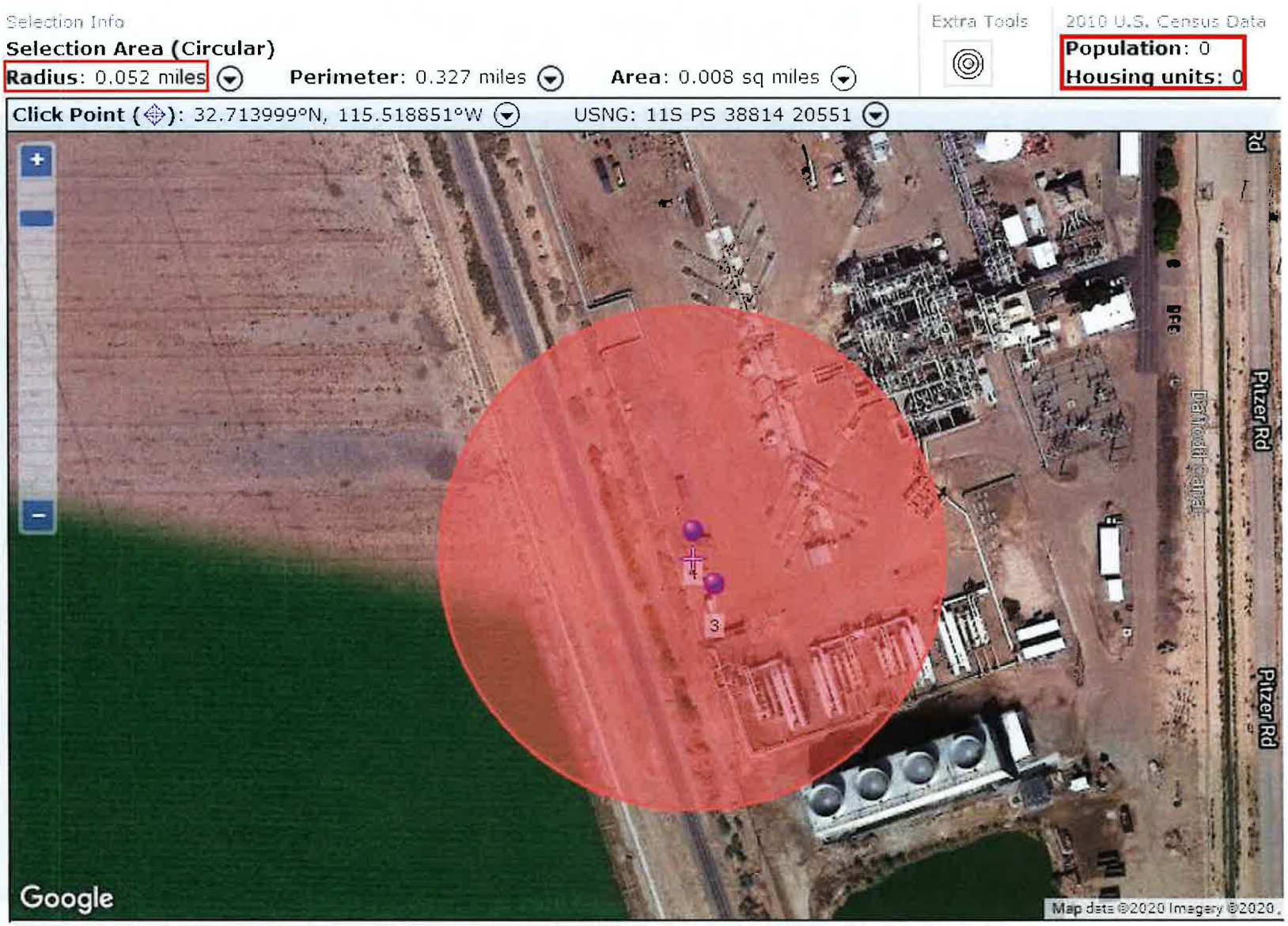

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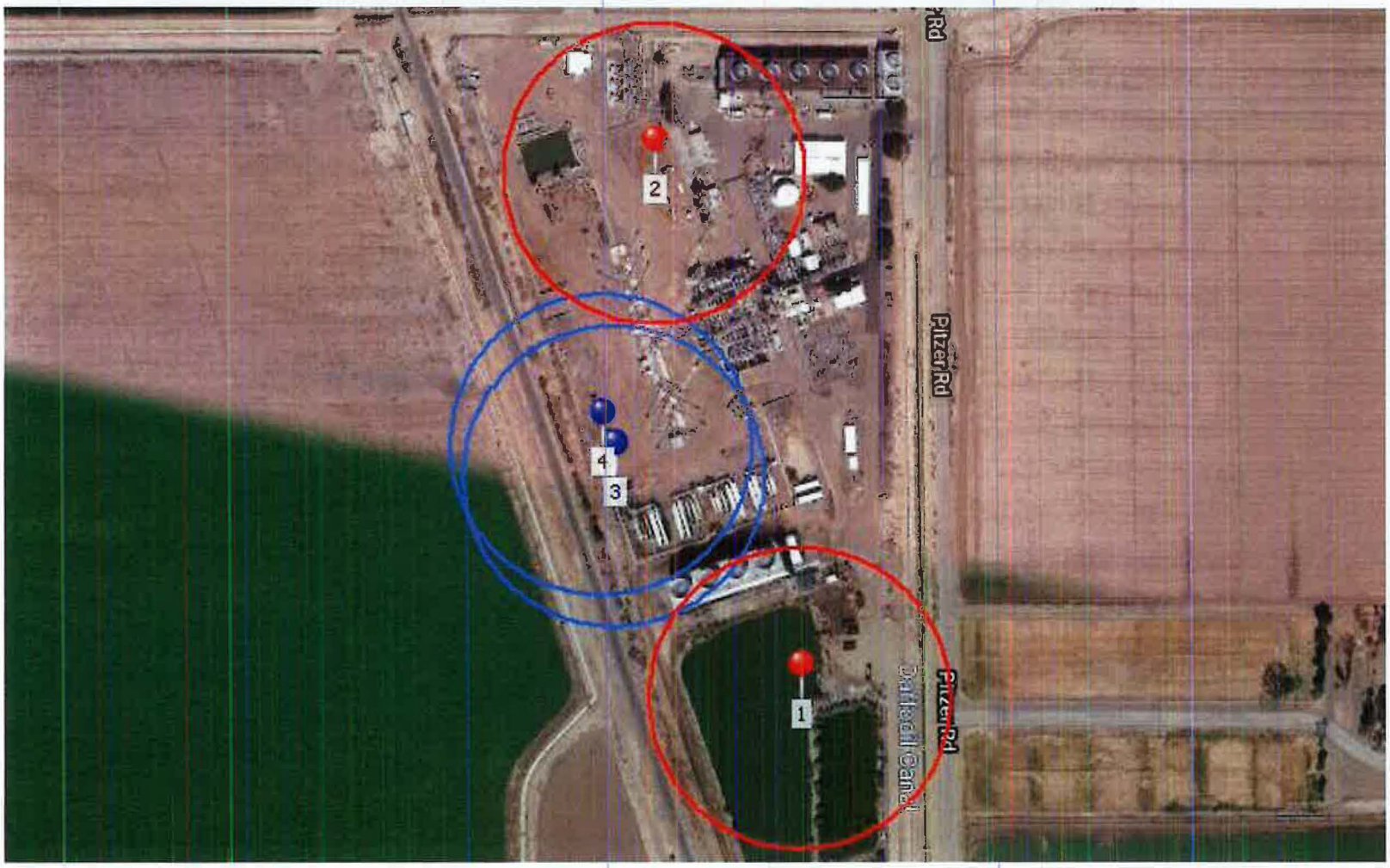
Figure 10: WCS Vulnerability Maps Overlaid for Isopentane Storage Vessels #1, #2, #3, & #4



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APPENDIX B
ALTERNATIVE SCENARIO CALCULATIONS

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ALTERNATIVE RELEASE SCENARIO (ARS)

The selected alternative release scenario is a release due to a break in the product (isopentane) transfer hose connection during truck loading. This was considered the most likely release scenario due to human factors associated with manned transfer operations, as well as reliability issues in industry related to hose degradation and coupling failures. It is assumed that the transfer hose uncouples during isopentane transfer operations and that it is released through an area of 12.6 square inches. The release duration is limited by the volume in the Isopentane Storage Vessel (9,000 gallons), which is 2.4 minutes. In the evaluations of this alternative release scenario, the concrete secondary containment area composed of concrete was credited as a mitigation measure.

In order to calculate the release quantity for a transfer hose rupture, the release rate through the transfer hose must be calculated. The following equation, obtained from the EPA Risk Management Plan Guidance for Offsite Consequence Analysis, illustrates the calculation of the release rate for flammable liquids under pressure through a transfer hose:

$$QR = A_h \times 6.82 \sqrt{\frac{11.7}{DF^2} \times LH + \frac{669}{DF} \times P_g}$$

Where:

- QR = Release rate (lbs./min)
- A_h= Hole or puncture area (square inches)
- DF = Density Factor, dimensionless, obtained from the EPA Risk Management Plan Guidance for Offsite Consequence Analysis
- LH = Height of liquid level above hole (inches)
- P_g = Gauge pressure of the vessel (psig)

To calculate the release rate utilizing the above equation, the values for each of the following variables were calculated for isopentane:

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Hole Area

The transfer hose used in isopentane filling operations at both plants is 4 inches in diameter. Thus, the hole area is based upon the transfer hose rupturing and calculated using the following:

$$HA = \pi r^2 = 12.6 \text{ in}^2$$

Density Factor

The Density Factors are obtained from Appendix C of the EPA Risk Management Plan Guidance for Offsite Consequence Analysis. The Density Factor value for isopentane is 0.79.

Liquid Height

The height of the liquid level above the hole is determined by the nominal liquid level in the vessel. The isopentane transfer point is taken to be at the bottom of the tank. Assuming that the isopentane storage vessel is 33% full of isopentane, this equates to 2,970 gallons being stored in the vessel (397 ft^3). This is a conservative assumption as the storage tanks are normally empty and are only used for temporary storage of isopentane. According to the available tank data provided by the facility, the diameter of the Isopentane Storage Vessel is approximately 8 feet and length is 33.5 feet (tangent to tangent length). It should be noted that the Isopentane Storage Vessel is a horizontal vessel. In calculating the height of the liquid column within the tank, the Isopentane Storage Vessel was modeled as a cylinder, and thus the equation for volume of liquid within the tank is that of a horizontal cylinder. The equations below were used to find the height of the liquid column within the Isopentane Storage Vessel:

$$V_L = A_L \times L$$

$$A_L = R^2 \cos^{-1}\left(\frac{R - LH}{R}\right) - (R - LH)\sqrt{2R \cdot LH - LH^2}, \quad \therefore$$

$$V_L = L \times \left[R^2 \cos^{-1}\left(\frac{R - LH}{R}\right) - (R - LH)\sqrt{2R \cdot LH - LH^2}\right]$$

Where:

V_L = Volume of liquid within the Tank (ft^3)

A_L = Area of liquid (ft^2)

R = Radius of the Tank (ft.)

L = Length of the Tank (ft.)

LH = Height of the liquid within the Tank (ft.)

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Values for each variable listed in the equations above are provided below, with the exception of LH, as this is the variable to be calculated:

V_L = 2,970 gallons = 397 ft^3

R = 4 ft.

L = 33.5 ft.

By using the above values within the equation, the height of the liquid column within the Isopentane Storage Vessel can be calculated, which is approximately 2.3 ft (2.2857 ft) or 27.6 inches.

Pressure

The normal operating pressure of the isopentane motive fluid storage tank was identified to be 60 psig.

Modeling

Using these values, the release rate of isopentane can be determined. Please see the calculations below for determining the isopentane release rate:

$$QR = 12.6\ in^2 \times 6.82 \sqrt{\frac{11.7}{(0.79^2)} \times 27.6\ in + \frac{669}{0.79} \times 60\ psig}$$

$$QR = 19{,}468.3955\ \frac{lbs.}{min} \approx 19{,}468\ \frac{lbs.}{min}$$

Over the 2.4-minute release period, this results in a total of 46,260 lbs. released to the secondary containment area to form an evaporating puddle, for which the vapors form a vapor cloud. If this vapor cloud ignited, the resultant blast could generate overpressure damage.

The ALOHA modeling calculation predicts that the area impacted by the endpoint, which is overpressure of 1 psi, is a circle with approximately a 57-yard radius (171 ft / 0.032 mi). According to MARPLOT 5.1.1, there are 0 residents and 0 housing units within this vulnerability zone for both vessels. The table and figures on the following pages illustrate the scenario modeling parameter summary, scenario circle for the release, the ALOHA modeling output, as well as the MARPLOT results.

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Figure 11: ARS ALOHA Modeling Results

```
SITE DATA:
  Location: HEBER, CALIFORNIA
  Building Air Exchanges Per Hour: 0.33 (unsheltered double storied)
  Time: September 21, 2020  1619 hours PDT (using computer's clock)

CHEMICAL DATA:
  Chemical Name: ISOPENTANE
  CAS Number: 78-78-4                    Molecular Weight: 72.15 g/mol
  PAC-1: 3000 ppm    PAC-2: 33000 ppm    PAC-3: 200000 ppm
  LEL: 14000 ppm     UEL: 76000 ppm
  Ambient Boiling Point: 82.1° F
  Vapor Pressure at Ambient Temperature: 0.91 atm
  Ambient Saturation Concentration: 904,803 ppm or 90.5%

ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)
  Wind: 3 meters/second from W at 10 meters
  Ground Roughness: open country         Cloud Cover: 5 tenths
  Air Temperature: 77° F
  Stability Class: D (user override)
  No Inversion Height                    Relative Humidity: 50%

SOURCE STRENGTH:
  Evaporating Puddle (Note: chemical is flammable)
  Puddle Area: 480 square feet           Puddle Mass: 46260 pounds
  Ground Type: Concrete                  Ground Temperature: 77° F
  Initial Puddle Temperature: Air temperature
  Release Duration: ALOHA limited the duration to 1 hour
  Max Average Sustained Release Rate: 176 pounds/min
     (averaged over a minute or more)
  Total Amount Released: 6,022 pounds

THREAT ZONE:
  Threat Modeled: Overpressure (blast force) from vapor cloud explosion
  Type of Ignition: ignited by spark or flame
  Level of Congestion: congested
  Model Run: Heavy Gas
  Red    : LOC was never exceeded --- (8.0 psi = destruction of buildings)
  Orange: 28 yards --- (3.5 psi = serious injury likely)
  Yellow: 57 yards --- (1.0 psi = shatters glass)
```


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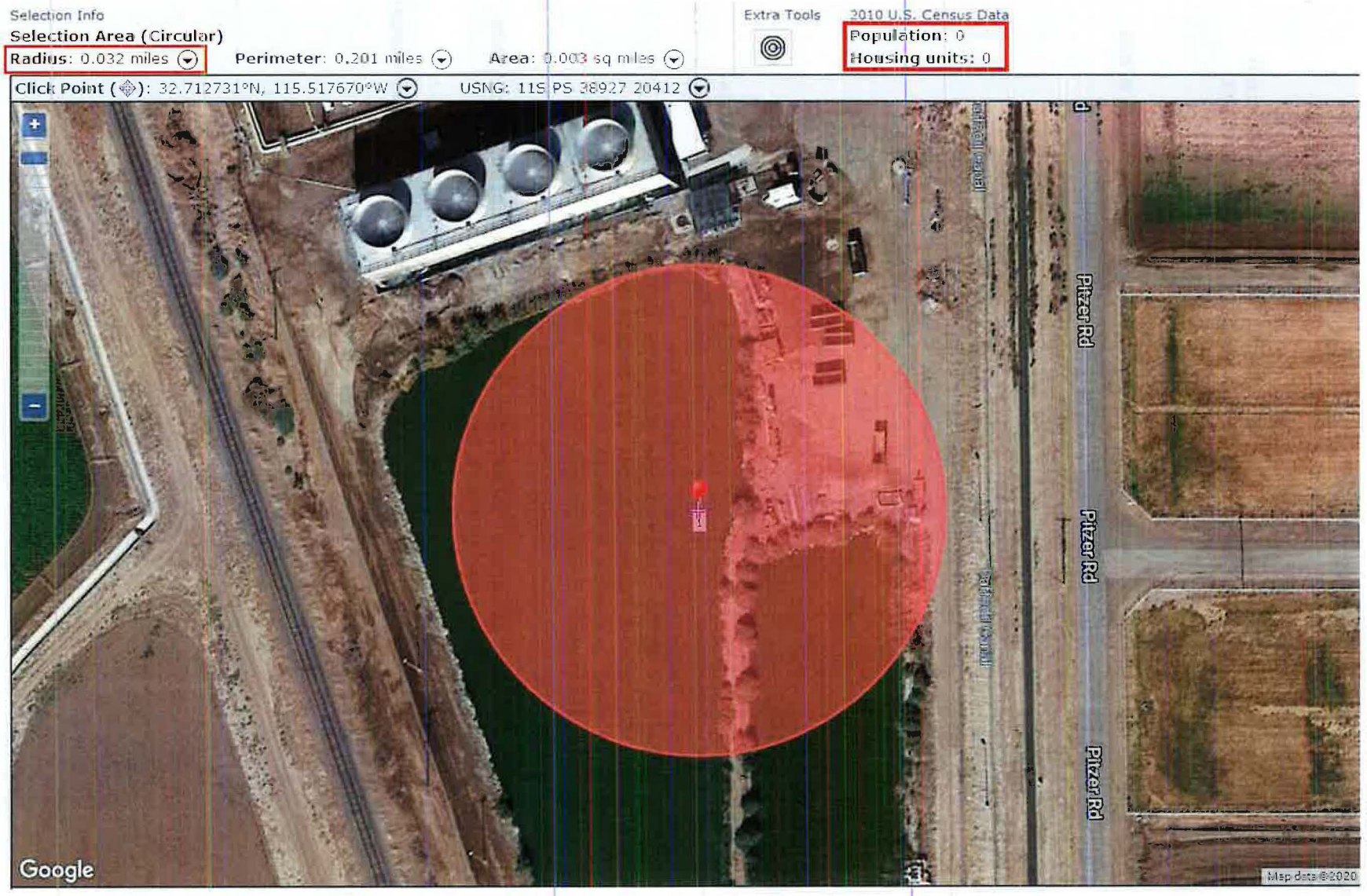
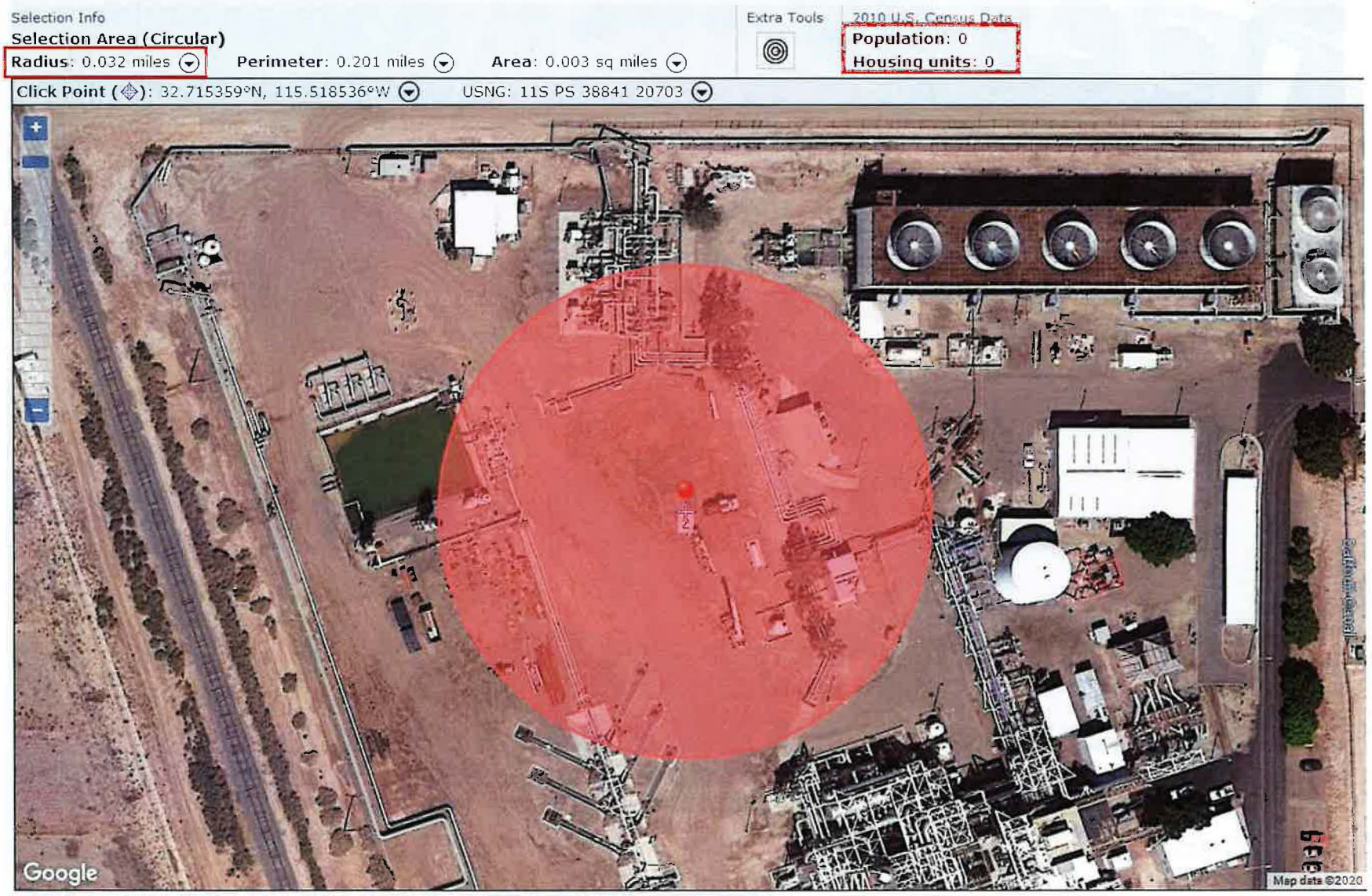
Figure 12: ARS MARPLOT 5.1.1 Map for Isopentane Storage Vessel #1



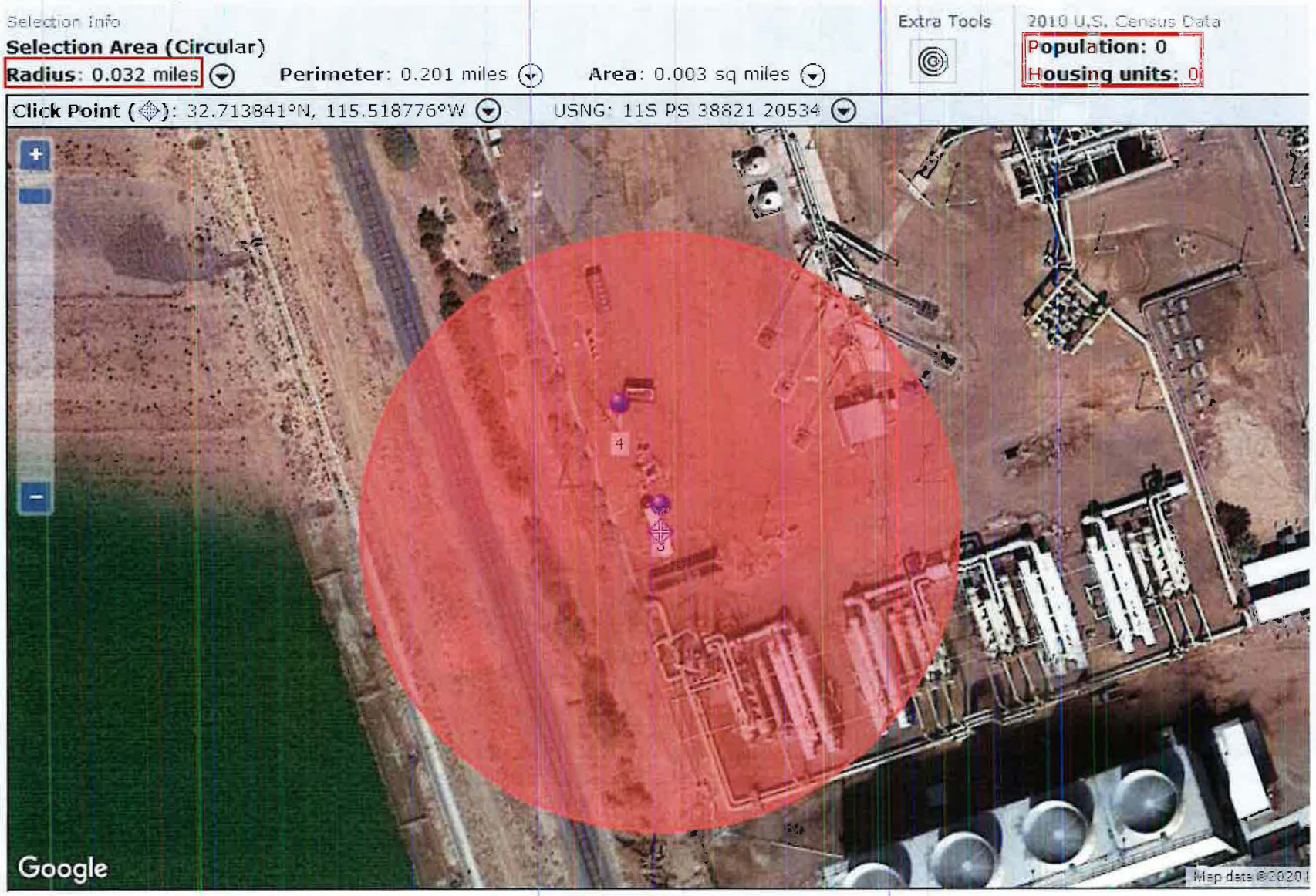
EEC ORIGINAL PKG

Figure 13: ARS MARPLOT 5.1.1 Map for Isopentane Storage Vessel #2



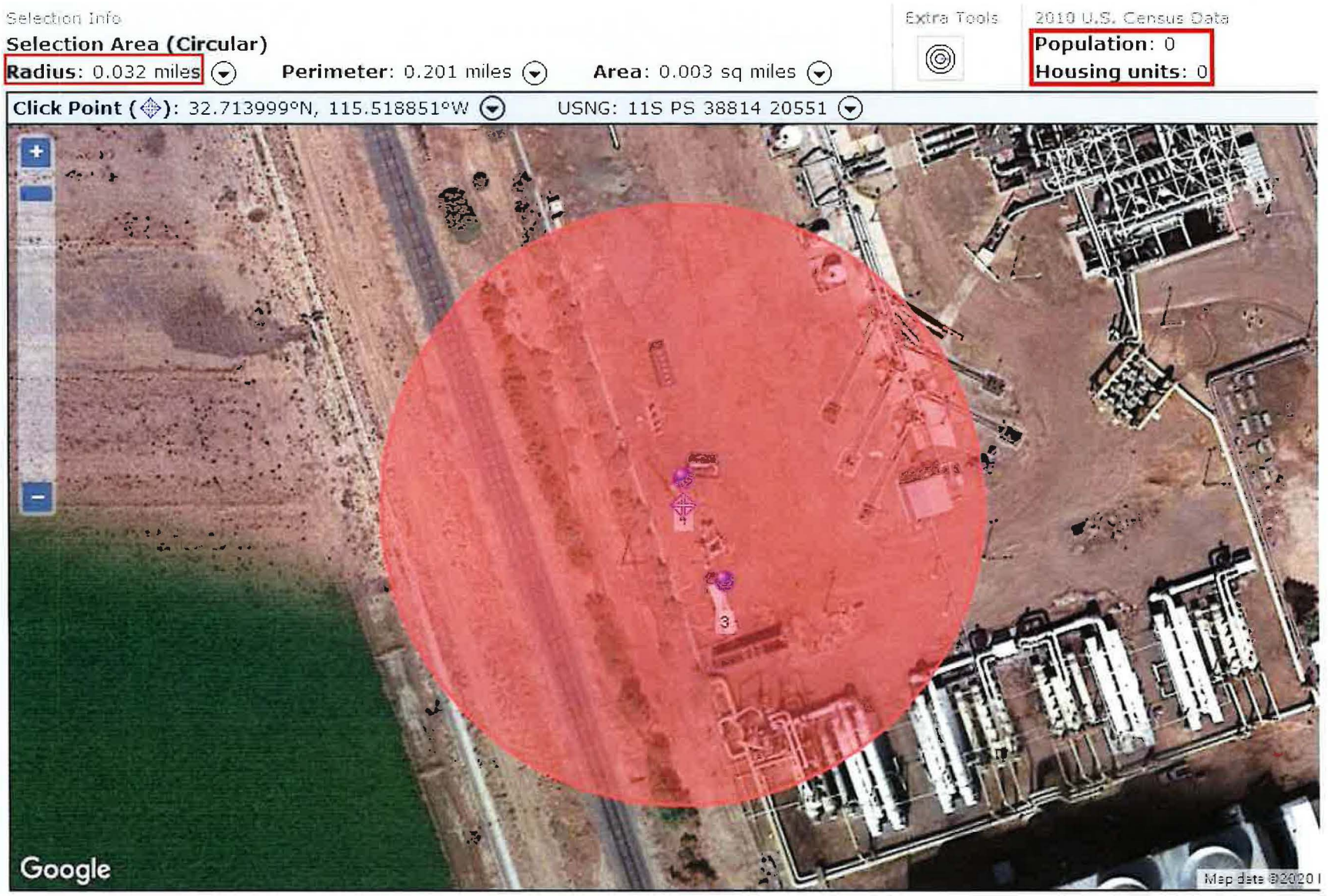
EEC ORIGINAL PKG

Figure 14: ARS MARPLOT 5.1.1 Map for Isopentane Storage Vessel #3



EEC ORIGINAL PKG

Figure 15: ARS MARPLOT 5.1.1 Map for Isopentane Storage Vessel #4



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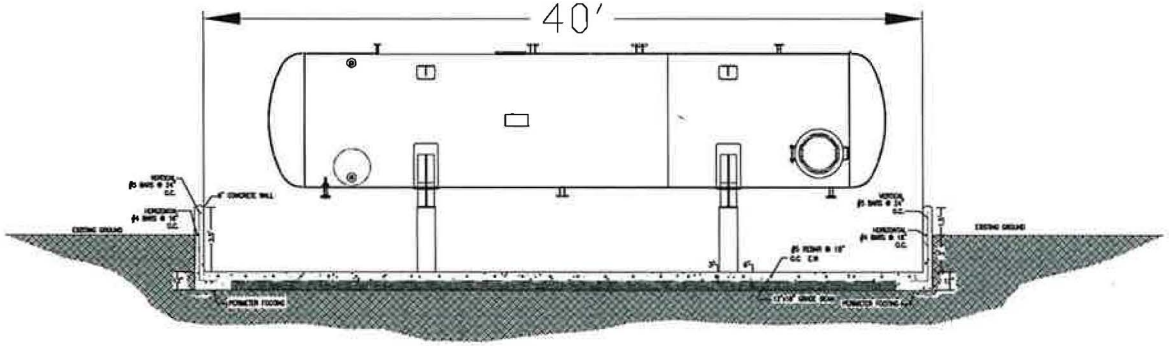
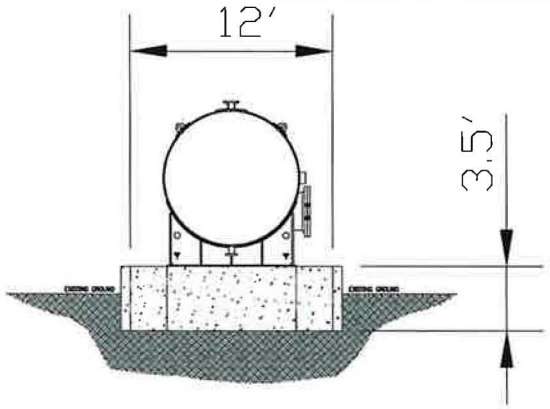
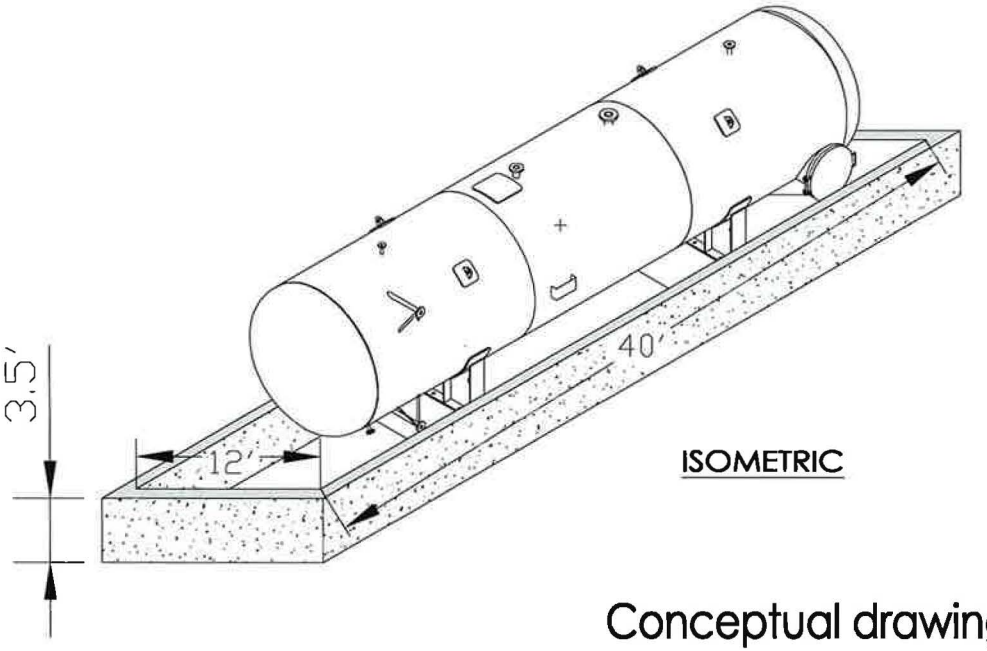
EEC ORIGINAL PKG



CROSS SECTION



FRONT VIEW



ISOMETRIC

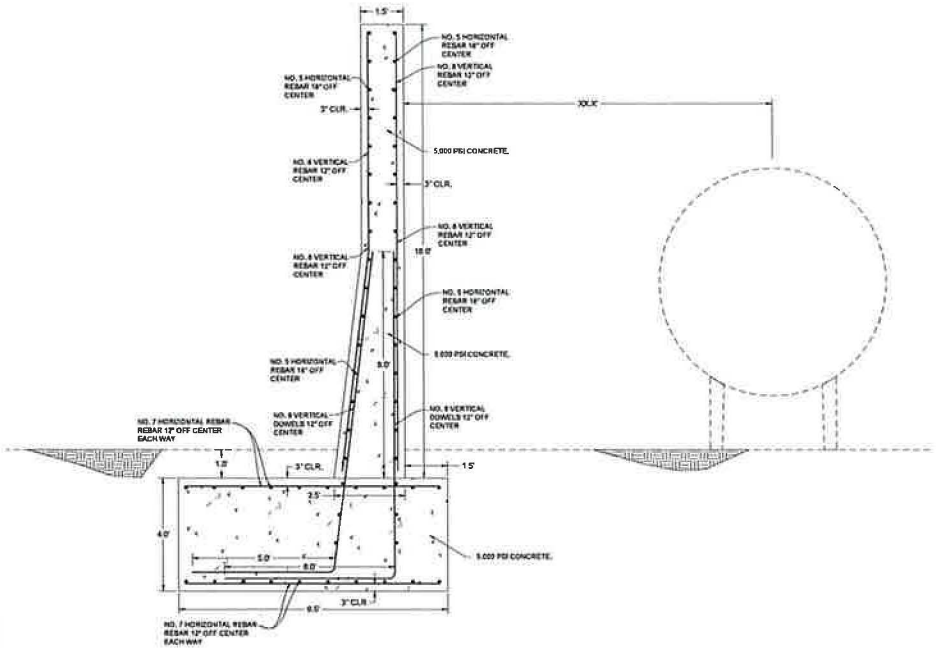
Conceptual drawing of the Heber 1 Isopentane storage tanks
Secondary containment Typical.

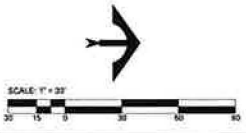
ORMAT

Date: 12/21/2020

CONCRETE GENERAL NOTES:

1. CONCRETE SHALL BE 5,000 PSI TYPE V PORTLAND CEMENT WITH A MAXIMUM WATER/CEMENT RATIO OF 0.40 (BY WEIGHT).
2. CONCRETE POUR SHALL BE MONOLITHIC.
3. REINFORCING BARS SHALL BE GRADE 60 (fy = 60,000 psi).
4. ALL REINFORCING BARS SHALL HAVE AT MINIMUM 3" COVER.
5. SPECIAL INSPECTIONS SHALL BE PROVIDED FOR THE CONCRETE CONSTRUCTION PER CALIFORNIA BUILDING CODE SECTION 1704.4 AND TABLE 1704.4 REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION.





DIGALERT

Dynamic CONSULTING ENGINEERS
CIVIL ENGINEERING - LAND SURVEYING - CONSTRUCTION MANAGEMENT
2415 IMPERIAL BUSINESS PARK DRIVE, SUITE B.,
IMPERIAL, CA. 92251
TEL. (760) 545-0162 FAX (760) 545-0163

REVISION	DATE	COMMENTS

PREPARED UNDER THE DIRECT SUPERVISION OF:
CARLOS BELTRAN, P.E. — R.C.E. No. 69121
08/09/2019 — REG. EXP. 06/30/20
DATE

IMPERIAL COUNTY PUBLIC WORKS DEPARTMENT
APPROVED FOR CONSTRUCTION BY:
DATE — R.C.E. No. — REG. EXP.

ORMAT NEVADA INC.
6225 NEIL ROAD
RENO, NV 89511

DATE: 5/1/2020
DRAWN: DB
SCALE: AS SHOWN
CHECKED: CB

HEBER 1 REPOWER PROJECT
MOTIVE FLUID TANK FIRE WALLS
HEBER, CA

FIREWALL
CROSS SECTION

REFERENCE
PROJECT NO.
DCE 013719

SHEET X OF X

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APPENDIX I – IMPERIAL COUNTY RECLAMATION PLAN APPLICATION

CHAMBERS GROUP

Note to the Reader

On December 17th, 2019 ORMAT Nevada Inc. (ORMAT) submitted an application to the County of Imperial Planning & Development Services Department to amend Conditional Use Permit (CUP) No. 15-0013 for the Heber 1 geothermal facility in Imperial County, CA. The amendment proposed a Repower Project which would take the existing dual-flash steam turbine generator out of service and install two new OEC geothermal power generation units to increase performance of the facility (Project). The Project also included installation of new equipment including six 10,000-gallon isopentane storage tanks and an evacuation skid/vapor recovery maintenance unit. Based on close coordination with the County of Imperial ORMAT has decided to reduce the number of 10,000 gallon isopentane tanks on the Heber 1 site from six tanks to two tanks. While these revisions are not reflected in the text of the following technical report, it does not materially change any of the impact assessments or technical conclusions within the report.

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IMPERIAL COUNTY
PLANNING & DEVELOPMENT SERVICES DEPARTMENT

Reclamation Plan Application

OWNER, OPERATOR AND AGENT:

1. Applicant (Name, Mailing Address and Telephone Number):
   ORMAT Nevada, Inc.
   6140 Plumas Street
   Reno, Nevada 89519
   (755) 356-9029

2. Property Owner (s), or owner of Surface Rights (Name, Mailing Address and Telephone Number): [if different from applicant]
   See 1.

3. Owner of Mineral Rights (Name, Mailing Address and Telephone Number): [if different than applicant]
   See 1.

5. Lessee (Name, Mailing Address and Telephone Number):
   See 1.

6. Operator (Name, Mailing Address and Telephone Number): [if different than applicant]
   See 1.

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7. Agent of Process (Name, Mailing Address and Telephone Number):

Melissa Wendt
Director, Project Development
6140 Plumas Street
Reno, Nevada 89519
(755) 356-9029

LOCATION:

8. Legal Description: (must be full legal)

895 Pitzer Road, Heber, CA (APN 054-250-035 and 054-250-036)
Heber 7.5-min quadrangle, Section 34, Township 16 South, Range 14

Assessor Parcel No.: 054-250-035 and 054-250-036

Longitude: 115°31'03.0W

Latitude: 32°42'47.9N

Elevation: near zero

9. Size of the land(s) that will be affected by mining operation. Total acreage:

Heber 1 site is approximately 25 acres.

10. Describe existing and proposed access to the mine site: (please be specific)

Via existing ingress/egress. Primary highway access is provided via CA Route 111.
Jasper Road stems off of CA Route 111 and provides immediate access to the site. There is an access road surrounding the perimeter within the site.

GEOLOGICAL BACKGROUND:

11. Mineral commodity to be minded:

Geothermal fluids. However, no new wells are proposed.

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12. General Geological description of the area:

The site is located within geologic units defined as late Pleistocene to Holocene-age Lake Cahuilla Beds. These geologic units are found in the southern portion of the Salton Trough, a northwesterly-trending tectonic basin west of the Chocolate Mountains. Up to late prehistoric times, a series of ephemeral freshwater lakes accumulated sediments that are found across the central portion of the Salton Trough, referred to by geologists as Lake Cahuilla sediments.

13. Detailed description of the geology of the actual site in which surface mining is to be conducted:

The site is underlain with alluvial deposits associated with the former Lake Cahuilla. These deposits consist of thinly laminated clays, sands, and gravels. Surface soils within the project area consist of a combination of fill and alluvium.

14. Brief description of the environmental setting of the site and the surrounding areas. Existing land uses, soil, vegetation, ground water elevation and surface water characteristics.

The site is located within the existing Heber 1 facility, which is comprised of graded, developed area. Soils are exposed and gravel is used as fill, with minimal natural vegetation present. Groundwater is present at depths starting at 6 feet. The surrounding areas are currently designated for General Agriculture and Heavy Agriculture and contain active agricultural operations.

MINING OPERATION AND PRODUCTION:

15. Proposed starting date of operation: Plant in production since 1985

Estimated life of operation: 30 years, 2020-2050

Termination Date: 2050

Duration of first phase: _____

Second phase: _____

Third phase: _____

Fourth phase: _____

16. Operation will be (include days and hours of operation):

Continuous: Plant operates 24 hours per day, 7 days a week

Intermittent: _____

Seasonal: _____

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17. Maximum anticipated annual production (Tons or Cubic Yards):

N/A

18. Total anticipated production:

Minerals: N/A cubic yards/tons 0

Tailings retained on site: cubic yards/tons 0

Tailings disposed off site: cubic yards/tons 0

Maximum anticipated depth (indicate on map location of benchmarks to verify mine depth):

N/A - Project does not propose drilling or extraction.

19. Describe mining method:

N/A--No mining is proposed as part of the Proposed Project.

20. Describe nature of processing and explain disposal of tailings or waste.

N/A - No tailings will be processed as part of the Proposed Project.

21. Do you plan to use cyanide or other toxic materials in your operations?

Six additional above ground storage tanks will be used for isopentane storage, 10,000 gallons each.

Do you plan to use or store petroleum products or other hazardous materials on the site?

No.

Describe refueling and maintenance of vehicles.

All fueling for construction vehicles will occur off-site as necessary.

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22. Indicate the quantity of water to be used, source of water, method of conveyance to the mine site, the quantity, quality and method of disposal of used and/or surplus water. Indicate if water well to be used for mine operation (drilling, reactivation, changing use or increasing volume of water well may require Conditional Use Permit approval).

No additional water will be required to support the proposed facilities. Water will be used for dust suppression during ground disturbing activities.

23. Describe phases of mining if applicable and concurrent reclamation including time schedule for concurrent activities.

No mining is proposed as part of the Proposed Project. Site reclamation would be performed at the end of the facilities' operational lifespan of 30 years.

24. Describe the types of equipment that will be used in the operation, including the estimated average daily trips (ADT) that will be generated by the operation.

Construction equipment would include a crane, boom truck, fork lift, man lift, haul trucks, and hand tools.

25. Include the following maps: (NOTE: Without these the application is automatically incomplete.)

(1) Topographic Map with overlay showing proposed area to be mined.

(2) Site Plan showing mine layout and dimensions.

(3) General Vicinity Map showing the location of the mine site in Imperial County.

(4) Cross Section Map.

RECLAMATION:

26. Indicate by overlay of map of Item No. 24, or by color or symbol on map those areas to be covered by the reclamation plan:

Total acreage: 24.92 acres

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27. Describe the ultimate physical condition of the site and specify the proposed use (s) or potential uses of the land after reclamation. Explain if utilities, haul or access roads will be removed or reclaimed.

The site is currently developed and used for the generation of geothermal energy. The site consists of exposed soils and gravel. The site would likely be returned to a natural state or used for agricultural production after geothermal energy production concludes. There is no plan for developing new roads associated with the Proposed Project and access will be provided using existing roads within and surrounding the Proposed Project site.

28. Describe relationship of the interim uses than mining and the ultimate physical condition to:

(a) Imperial County Zoning Ordinance

(b) Imperial County General Plan

The site is zoned General Agriculture within the Heber Specific Plan Area (A-2-G-SPA), which is designated for commercial, residential, industrial, and renewable energy land uses in mixed-use development. The Proposed Project and uses are consistent with the Imperial County Zoning Ordinance and General Plan.

29. Notarized statement that all owners of the possessory interest in the land have been notified of the proposed uses or potential uses identified in Item No. 25 (see Attachment "A").

N/A - The site owner is the applicant (ORMAT) and no other parties have an interest on the subject property.

30. Describe soil conditions and proposed topsoil salvage plan.

The site is located within the existing Heber 1 facility, thus the site has been previously graded and developed. Topsoil at the Proposed Project site is a mixture of alluvium and fill. Topsoil will be excavated for the construction of a new retention basin reaching a depth of seven feet, while existing retention basins would be backfilled.

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31. Describe the methods, their sequence and timing, to be used in bringing the reclamation of the land to its end state. Indicate on map (Items Nos. 24 and 25) or on diagrams as necessary. Include discussion of the pertinent items listed below.

(a) Backfilling and grading

(b) Stabilization of slopes

(c) Stabilization of permanent waste dumps, tailings, etc.

(d) Rehabilitation of pre-mining drainage

(e) Removal, disposal or utilization of residual equipment, structure, refuse, etc.

(f) Control and disposal of contaminants, especially with regard to surface runoff and ground water

(g) Treatment of streambeds and streambanks to control erosion and sedimentation

(h) Removal or minimization of residual hazards

(i) Resoiling, revegetation with evidence that selected plants can survive given the site's topography, soil and climate:

See Attachment D - Revegetation Plan.

32. If applicant has selected a short term phasing of his reclamation, describe in detail the specific reclamation to be accomplished during the first phase:

All reclamation activities would occur at the conclusion of the facilities' operational lifespan of 30 years (2050).

33. Describe how reclamation of this site in this manner may affect future mining at this site and in the surrounding area:

Reclamation of the site would remove all facilities from the entirely of the Heber 1 facility and return the land to a natural state or to land for agricultural production. These reclamation activities would not affect future mining or geothermal operations on the site or in the area.

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34. Notarized statement that the person submitting the plan accepts responsibility for reclaiming the mined lands in accordance with the Reclamation Plan (Attachment "B"):

Attached.

35. Include Reclamation Cost Calculations as Attachment "C":

Attached.

36. Describe proposed Revegetation Plan (attach as "Attachment D" if necessary):

The entirety of the Heber 1 facility would be dismantled and removed from the area. All geothermal wells would be abandoned per DOGGR requirements. Once the site is free of facilities, the site would be disced and seeded with a mixture of native seeds, per Imperial County's recommendation. Refer to Attachment D.

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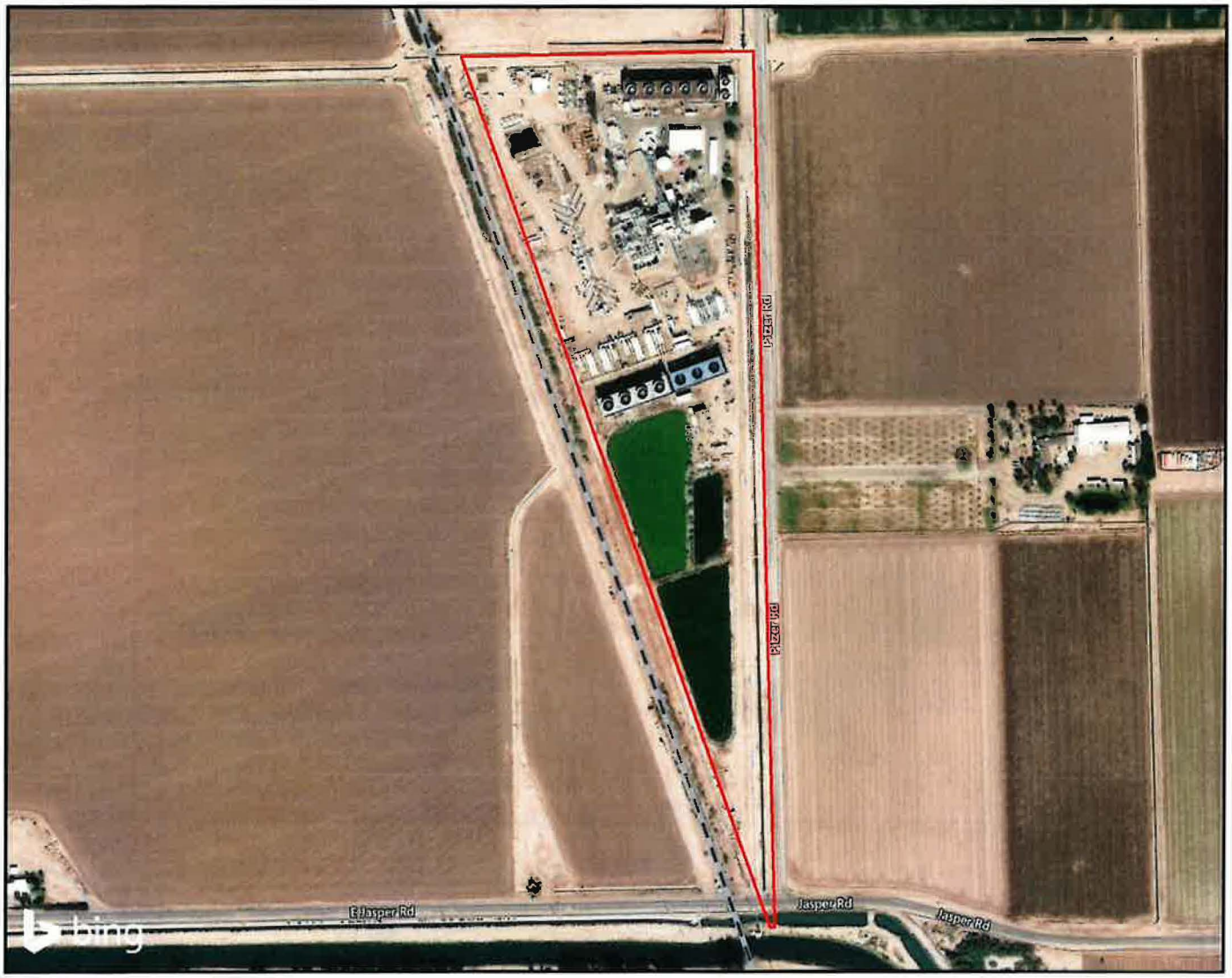

Legend

Project Location

N

0 150 300 600

Feet

Figure 1
Heber Property
Project Location

Name: 21172 BIO Fig 1 Location & Vicinity.Mxd
Print Date: 7/18/2019, Author: pcarlos

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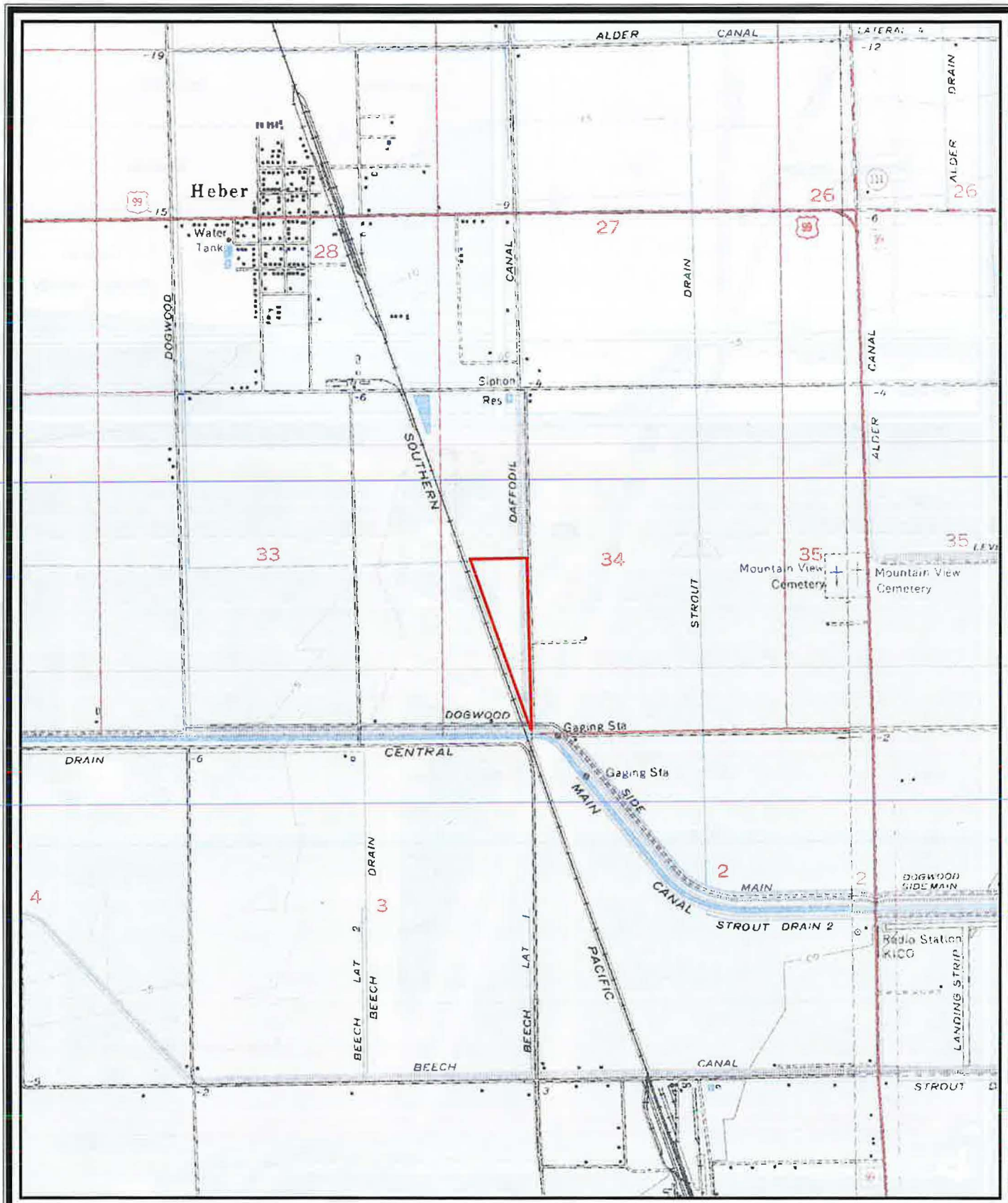

Legend

Project Location

N

0 750 1,500 3,000

Feet

Figure 2

Heber Property Topographic Map

Name: 21172 BIO Fig 2 Topographic Map.Mxd
Print Date: 9/25/2019, Author: pcarlos

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EXISTING FACILITY KEYNOTES

① EXISTING CONCRETE CANAL TO REMAIN.
② EXISTING FENCE TO REMAIN.
③ EXISTING A.C. PAVEMENT TO REMAIN.
④ EXISTING ELECTRICAL LIGHT POLE TO REMAIN.
⑤ EXISTING CONCRETE PAD TO REMAIN.
⑥ EXISTING COOLING TOWER TO REMAIN.
⑦ EXISTING RAILROAD TRACKS TO REMAIN.



Name of Owner: Orcal Geothermal Inc.
Legal Description: POR E2 TR 45 16-14 20AC LY ELY OF RR
Assesor's Parcel Number: 054250036

100 200 400
Feet

N

PREPARED BY: CHAMBERS GROUP	FOR:
TITLE: Heber I Expansion Site Plans	SHEET: 1 of 1

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ATTACHMENT "A"

STATEMENT OF NOFICATION

I, the undersigned, have notified all owners of the possessory interest in the land of the proposed use (s) or potential uses identified in Item No. 26 of the Reclamation Plan.

Signed this _____ day

of _____, 2005.

_____

Operator or Operator's Agent

MAIN OFFICE: 801 Main Street El Centro, CA 92243 (760) 482-4236 FAX: (760) 353-8338 E-MAIL: planning@imperialcounty.net
ECON. DEV. OFFICE: 836 Main Street El Centro, CA 92243 (760) 482-4900 FAX: (760) 337-8907

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ATTACHMENT "B"

STATEMENT OF RESPONSIBILITY

I, the undersigned, hereby agree to accept full responsibility for reclaiming all mined lands as described and submitted herein with any modifications requested by the County of Imperial as conditions of approval.

Signed this _____ day

of _____, 2005.

_____

Operator or Operator's Agent

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ATTACHMENT "C"

RECLAMATION COST ANALYSIS

MAIN OFFICE: 801 Main Street El Centro, CA 92243 (760) 482-4236 FAX: (760) 353-8338 E-MAIL: planning@imperialcounty.net
ECON. DEV. OFFICE: 836 Main Street El Centro, CA 92243 (760) 482-4900 FAX: (760) 337-8907

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CHAMBERS GROUP

RECLAMATION COST ESTIMATE FOR HEBER 1 GEOTHERMAL FACILITY

From: Chambers Group, Inc.

Date: November 5, 2019

RE: Reclamation Cost Estimate for the Heber 1 Geothermal Facility

---

This cost estimate has been prepared for the Heber 1 Repower Project and provides a general estimate to perform well abandonment and site reclamation/revegetation for the entire 25-acre Heber 1 Geothermal Facility.

Well Hole Abandonment

Cost of Abandoning Two Injection Wells:

2 wells x 200 feet[1] x $16.10/foot[2] = $6,440

Site Reclamation and Revegetation

Cost of Reclaiming 25 acres:

$10,235[2] (first acre) + $140,875 ($5,635/acre[2] for 25 acres) = $151,110

TOTAL COST ESTIMATE: $157,550

References

[1] California Department of Conservation Oil, Gas, and Geothermal Resources. April 2019. California Code of Regulations, Section 1723. Available online at: https://www.conservation.ca.gov/index/Documents/DOGGR-SR-1%20Web%20Copy.pdf

[2] New Mexico Energy, Minerals, and Natural Resources Department. 2013. Guidance for Estimating Reclamation Costs. Available online at: http://www.emnrd.state.nm.us/MMD/MARP/documents/MMD_Part3FAGuidelines_Sept2013.pdf

Reclamation estimates provided in this document were increased by 15% to account for six years of inflation and potential contingency costs.

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ATTACHMENT "D"

REVEGATION PLAN

(REVISED MARCH 25, 2005)
JH/lh/S:/forms_lists/reclamation plan aplication

MAIN OFFICE: 801 Main Street El Centro, CA 92243 (760) 482-4236 FAX: (760) 353-8338 E-MAIL: planning@imperialcounty.net
ECON. DEV. OFFICE: 836 Main Street El Centro, CA 92243 (760) 482-4900 FAX: (760) 337-8907

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From: Chambers Group, Inc.

Date: November 5, 2019

RE: Revegetation Plan for the Heber 1 Repower Project

INTRODUCTION

ORMAT Nevada, Inc (ORMAT) owns and operates the Heber 1 Geothermal Energy Facility (Heber 1). ORMAT proposes to amend CUP No. 15-0013 to allow for the replacement of the Steam Turbine and Bottoming units at Heber 1 with an ORMAT Integrated three-level unit (I3LU) and an Integrated two-level unit (ITLU); herein referred to as the "Proposed Project" or the "Heber 1 Repower Project". The I3LU configuration would include the installation of two new air cooled ORMAT Energy Converters (OECs); six additional isopentane storage tanks (10,000 gallons each); and a new Vapor Recovery Mechanical Unit (VRMU). Existing OEC 11 and OEC 13 will be converted to an ITLU. All proposed facilities would be developed within the existing Heber 1 facility and fence line. This application also proposes to renew the permitted life of the entire Heber 1 facility to 30 years (2020-2050).

This Revegetation Plan has been prepared in support of the Reclamation Plan Application as part of the CUP amendment application for the Heber 1 Repower Project.

PROJECT DESCRIPTION

Project Location

The Heber 1 facility is located on private lands owned by ORMAT in southern Imperial County (Figure 1). The Proposed Project would occur entirely on Assessor's Parcel Numbers (APN) 054-250-035 and 054-250-036 which is a 24.92-acre property. The address for Heber 1 is 895 Pitzer Road, Heber, CA 92249.

Reclamation, Abandonment, and Revegetation Schedule

Reclamation, abandonment, and revegetation activities would commence at the closure of the Heber 1 Geothermal Energy Facility in 2050, if the CUP amendment application is approved by Imperial County. Activities would commence after two injection wells have been plugged and the dismantlement and removal/disposal of the energy facilities. If necessary, reseeding would be held off until the appropriate season (e.g. fall, spring). Activities would take approximately 6 months to complete.

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Site Preparation

After all wells have been plugged and facilities are removed from the site, retention basins will be back-filled and the site will be graded and leveled by an excavator. The site is near zero elevation and is flat and absent of topography. Reclamation activities will mimic the existing grade of the site and not introduce a new gradient/slope to the area. The site will then be rolled with a soil aerator/loosener. After site reclamation, topsoil will be transported to the site and deposited evenly across the site.

Selection of Plant Materials

The Heber 1 site has minimal natural vegetation, as the site is used for geothermal energy generation and houses industrial equipment that should not have vegetation under/around the facilities. See Appendix A of the CUP application for Site Photographs. The surrounding area is dominated by agricultural production and no natural areas are in the immediate vicinity of the Project Site. ORMAT will reseed the entire 25-acre site with a native seed mix approved by Imperial County.

Irrigation and Maintenance

Revegetation of the site will be maintained by a contractor every two weeks to conduct weeding, watering, and removing trash/debris. The site will be irrigated by water truck as necessary to establish the new vegetation. It is suggested that reseeding occur in late-fall or early winter to maximize seedling recruitment by using the full extent of winter/spring rainy season.

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APPENDIX J – NOISE MODEL OUTPUT

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CHAMBERS GROUP

Note to the Reader

On December 17th, 2019 ORMAT Nevada Inc. (ORMAT) submitted an application to the County of Imperial Planning & Development Services Department to amend Conditional Use Permit (CUP) No. 15-0013 for the Heber 1 geothermal facility in Imperial County, CA. The amendment proposed a Repower Project which would take the existing dual-flash steam turbine generator out of service and install two new OEC geothermal power generation units to increase performance of the facility (Project). The Project also included installation of new equipment including six 10,000-gallon isopentane storage tanks and an evacuation skid/vapor recovery maintenance unit. Based on close coordination with the County of Imperial ORMAT has decided to reduce the number of 10,000 gallon isopentane tanks on the Heber 1 site from six tanks to two tanks. While these revisions are not reflected in the text of the following technical report, it does not materially change any of the impact assessments or technical conclusions within the report.

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Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 10/28/2019
Case Description: Heber 1 Repower

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Home	Residential	50	45	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		81	900	0
Flat Bed Truck	No	40		74	900	0
Gradall	No	40		83	900	0
Man Lift	No	20		75	900	0
Dump Truck	No	40		77	900	0
Jackhammer	Yes	20		89	900	0

Equipment	Calculated (dBA) *Lmax	Leq	Results Day Lmax	Noise Limits (dBA) Day Leq	Evening Lmax	Evening Leq
Crane	55	48	N/A	N/A	N/A	N/A
Flat Bed Truck	49	45	N/A	N/A	N/A	N/A
Gradall	58	54	N/A	N/A	N/A	N/A
Man Lift	50	43	N/A	N/A	N/A	N/A
Dump Truck	51	47	N/A	N/A	N/A	N/A
Jackhammer	64	57	N/A	N/A	N/A	N/A
Total	64	60	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

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APPENDIX K – TRAFFIC ASSESSMENT

CHAMBERS GROUP

Note to the Reader

On December 17th, 2019 ORMAT Nevada Inc. (ORMAT) submitted an application to the County of Imperial Planning & Development Services Department to amend Conditional Use Permit (CUP) No. 15-0013 for the Heber 1 geothermal facility in Imperial County, CA. The amendment proposed a Repower Project which would take the existing dual-flash steam turbine generator out of service and install two new OEC geothermal power generation units to increase performance of the facility (Project). The Project also included installation of new equipment including six 10,000-gallon isopentane storage tanks and an evacuation skid/vapor recovery maintenance unit. Based on close coordination with the County of Imperial ORMAT has decided to reduce the number of 10,000 gallon isopentane tanks on the Heber 1 site from six tanks to two tanks. While these revisions are not reflected in the text of the following technical report, it does not materially change any of the impact assessments or technical conclusions within the report.

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LINSCOTT
LAW &
GREENSPAN
engineers

Engineers & Planners
Traffic
Transportation
Parking

Linscott, Law & Greenspan, Engineers
4542 Ruffner Street
Suite 100
San Diego, CA 92111
858.300.8800 T
858.300.8810 F
www.llgengineers.com

Pasadena
Irvine
San Diego
Woodland Hills

October 29, 2019

Ms. Corinne Lytle-Bonine, PMP
Senior Project Manager
Chambers Group, Inc.
clytle-bonine@chambersgroupinc.com

LLG Reference: 3-19-3136

Subject: **Heber 1 Geothermal Expansion – Temporary Construction Trip Generation**
Imperial County, CA

Dear Corinne:

Linscott, Law & Greenspan, Engineers (LLG) has prepared this trip generation letter to document the expected short-term peak construction traffic volumes associated with the Heber 1 Geothermal Expansion Project ("Project").

Project Description

The Project proposes construction of the Heber 1 Expansion, which will include the replacement of the steam turbine and bottoming units with an integrated three-level unit, new air-cooled converter, new brine feed exchangers along with feed pumps, and a portion of the piping systems. The project is proposed within the existing footprint of the Heber 1 Geothermal Facility.

The Project site is located at 895 Pitzer Road within the Community of Heber, Imperial County, California. The 20-acre project area is located immediately northwest of the intersection of Pitzer Road and Jasper Road, west of CA-111. Regional access to the project area is provided via CA Route 111 in Imperial County, California. The town of Heber is located approximately 2 miles north of the site.

Temporary Construction Traffic Calculations

Replacement of the existing steam turbine and bottoming units will require a period of construction where workers will arrive and depart daily. Additionally, some heavy-truck traffic will occur to deliver and remove equipment to/from the site. Apart from the direct construction traffic described above, some ancillary trips would also occur related to non-heavy truck deliveries, construction management staff, periodic inspections, etc.

Project construction scheduling and phasing is yet to be determined, but coordination with the Project applicant indicates that approximately 50-60 construction workers would be onsite during the most intensive period of construction.

Philip M. Linscott, PE (1924-2000)
William A. Law, PE (1921-2018)
Jack M. Greenspan, PE (Ret.)
Paul W. Wilkinson, PE (Ret.)
John P. Keating, PE
David S. Shender, PE
John A. Boarman, PE
Clare M. Look-Jaeger, PE
Richard E. Barretto, PE
Keil D. Maberry, PE
Walter B. Musial, PE
An LGZWB Company Founded 1966

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Construction Worker Traffic

According to the development team, construction activity at this site is expected to occur between 6:00 AM and 6:00 PM. As stated above, the highest daily estimate of workers is 60 per day. Typically, each worker would be expected to arrive and depart the site at least once, resulting in a daily trip rate of two (2) vehicle trips per worker per day for all 60 workers.

Given the site's close proximity to Heber, some workers could be expected to leave and return to the site once per day on breaks. Conservatively assuming 50% of workers left and returned once per day (say for lunch), this would result in a daily trip rate of four (4) vehicle trips per worker per day for 30 workers.

Based on the forecasted work start/stop times, no worker trips would occur during the AM commuter peak period of 7:00 AM to 9:00 PM as they would already be on the site and working. Similarly, the PM commuter peak period is defined as 4:00 PM to 6:00 PM. With a 6:00 PM finish time, all workers would be departing the site after the commuter peak hour had ended.

Heavy Vehicle (Truck) Traffic

Heavy vehicle trips to the site would be expected to include delivery of construction vehicles and materials, as well as removal of the old turbines and other infrastructure to be replaced. Heavy-vehicle trips would not be expected to occur uniformly over the course of the construction period, but rather on occasion as delivery and removal of equipment is required. For the purposes of this temporary construction traffic generation evaluation, 10 daily truck trips were conservatively assumed to occur in conjunction with the maximum worker load of 60 workers.

The daily distribution of truck trips over the course of the 12-hour work day is also expected to be variable; for this analysis, a conservative estimate of 20 percent of daily truck trips was assumed to occur during both the AM peak and PM commuter peak hours.

As trucks are larger and heavier than passenger cars, with reduced acceleration braking and handling characteristics, a "passenger car equivalence" (PCE) factor of 2.5 was applied to each truck trip to account for the effects of these heavy vehicles within the traffic stream on flat terrain.

Miscellaneous Traffic

In addition to the worker and heavy-truck traffic described above, there will likely be miscellaneous trips associated with construction management, inspection, and non-truck related deliveries. A daily average of 12 trips is assumed to fall within these "miscellaneous" categories, of which 100% are conservatively assigned to the AM and PM peak hours.

Thus, the total number of vehicle trips generated by project construction is conservatively estimated at 254 trips per day, with 22 total trips during the AM peak

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hour and 22 total trips during the PM peak hour. Construction trip generation is presented in ***Table A*** below.

TABLE A
TEMPORARY CONSTRUCTION TRAFFIC GENERATION

Construction Trip Type	Quantity	Daily Volumes (ADT)			AM Peak Hour			PM Peak Hour		
		Rate [a]	PCE [b]	Volume	In	Out	Total	In	Out	Total
Worker	60 workers	3 /worker	1.0	180	0	0	0	0	0	0
Heavy Truck	10 vehicles	2 /vehicle	2.5	50	5	5	10	5	5	10
Miscellaneous	12 vehicles	2 /vehicle	1.0	24	6	6	12	6	6	12
Total	—	—	—	***254***	***11***	***11***	***22***	***11***	***11***	***22***

Footnotes:

a. Trip generation rate is calculated at 3 trips/worker (assumed 50% of 60 workers leave/return once during the day), and 2 trips/vehicle (in/out) for heavy truck and miscellaneous trips.

b. PCE = Passenger Car Equivalence factor.

General Note:

1. Based on the proposed construction start/stop times of 6:00 AM and 6:00 PM respectively, no worker trips would occur during the commuter peak periods of 7:00 AM – 9:00 AM and 4:00 PM – 6:00 PM.

County of Imperial Traffic Study Criteria

The County of Imperial Department of Public Works provides a set of criteria within its published *Traffic Study and Report Policy* (2007) to identify the need for a traffic study and report to be prepared. The basic criteria used to make the determination for providing a complete traffic study are:

a. Any project that adds more than 8% of the total existing vehicle trips on the adjacent road system at full build-out of the project.

b. Any project that generates more than 400 daily residential trips, 800 commercial or industrial trip ends, or 200 peak hour trip ends, as determined by the average trip rates contained in the ITE Trip Generation Informational Report or the Imperial County local exceptions.

c. Any project that has the potential to degrade an existing road section, an existing signalized intersection, or an existing unsignalized intersection to below the existing level of service or cause it to be lower than a level of service "C" during any peak hour, using the HCM methods of analysis on any individual, existing traffic movement.

d. Any project, within section *b* above, which generates more than 10% of its total traffic in the form of truck traffic.

e. Any project that intensifies the usage of the site above the level currently allowed by zoning codes and requires a CUP, zone change, variance, or other discretionary permit.

f. Any project that may cause an existing or proposed intersection to meet traffic signal warrants or cause a proposed intersection to be lower than LOS "C".

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LINSCOTT LAW & GREENSPAN engineers

Evaluation of Criteria

As noted in the discussion above, the Project will not generate any additional traffic upon full build-out. During the short-term interim construction period, up to 254 daily trips and a maximum of 22 total peak hour trips area calculated, which is fewer than the 800 daily trips or 200 peak hour trips described by the County criteria.

This level of traffic is unlikely to degrade any existing intersection below LOS C, and in any case, the effects of Project construction traffic would be temporary.

Given these Project characteristics and the estimated construction period trip generation, a traffic report would not be required. However, it is noted that these general criteria are not complete or exhaustive and the Department of Public Works reserves the right to make the final decision on the need for additional traffic impact studies as a condition of development.

Sincerely,

Linscott, Law & Greenspan, Engineers

Chris Mendiara
Associate Principal

cc: File

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APPENDIX L – VISUAL SIMULATIONS

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CHAMBERS GROUP

Note to the Reader

On December 17th, 2019 ORMAT Nevada Inc. (ORMAT) submitted an application to the County of Imperial Planning & Development Services Department to amend Conditional Use Permit (CUP) No. 15-0013 for the Heber 1 geothermal facility in Imperial County, CA. The amendment proposed a Repower Project which would take the existing dual-flash steam turbine generator out of service and install two new OEC geothermal power generation units to increase performance of the facility (Project). The Project also included installation of new equipment including six 10,000-gallon isopentane storage tanks and an evacuation skid/vapor recovery maintenance unit. Based on close coordination with the County of Imperial ORMAT has decided to reduce the number of 10,000 gallon isopentane tanks on the Heber 1 site from six tanks to two tanks. While these revisions are not reflected in the text of the following technical report, it does not materially change any of the impact assessments or technical conclusions within the report.

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HEBER 1 REPOWER PROJECT

VIEWPOINT MAP





1 PHOTO VIEWPOINT

LARGE MAP VIEW-AREA

PROJECT AREA

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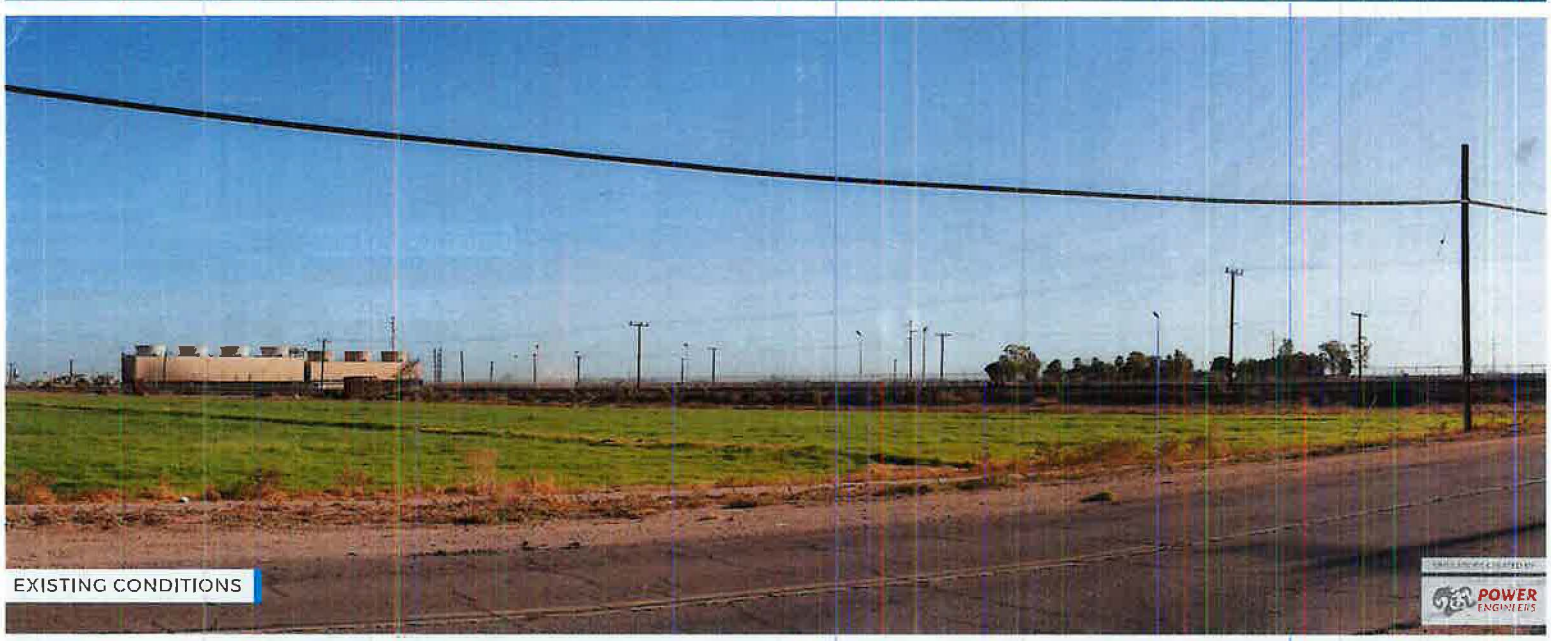

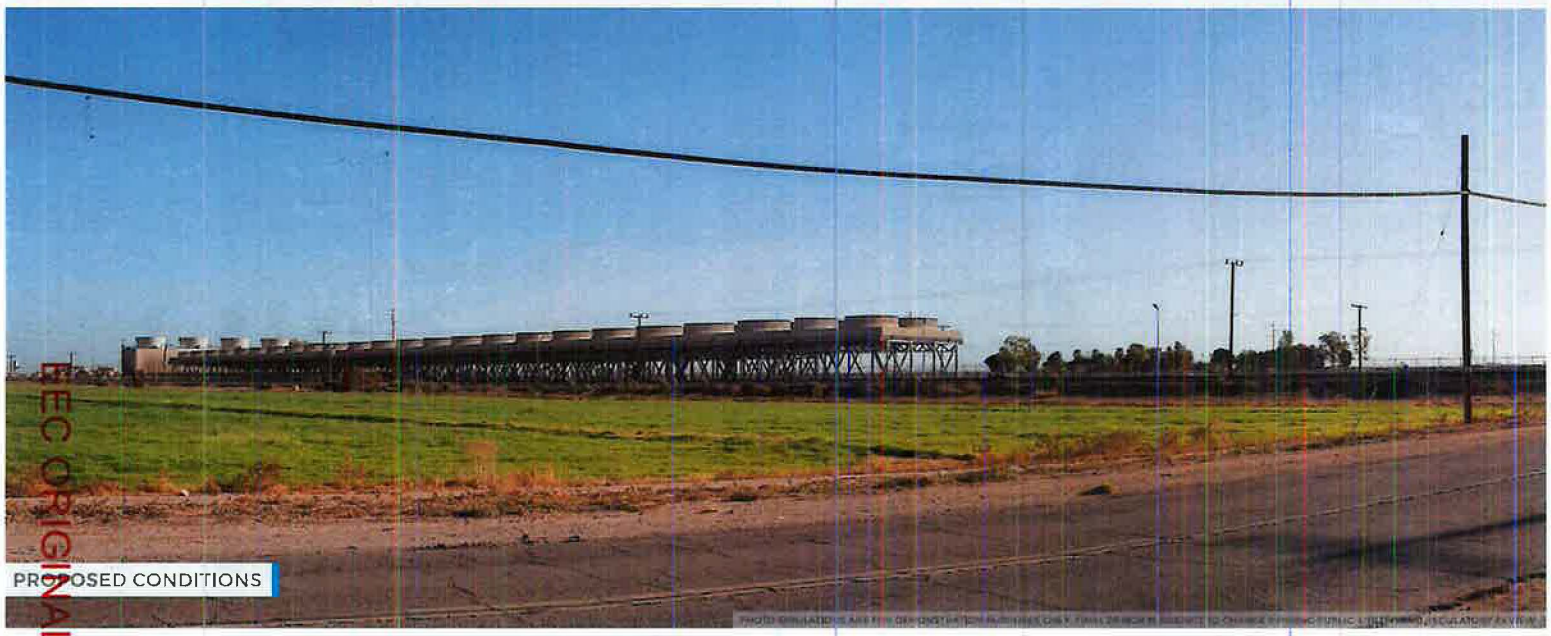

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HEBER 1 REPOWER PROJECT

VIEWPOINT 1

DATE: 09/12/2019

TIME: 10:04 AM

DIRECTION: NORTHEAST



1 PHOTO VIEWPOINT

PROJECT AREA

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