DRAFT INITIAL STUDY
AND MITIGATED NEGATIVE DECLARATION

FOR THE

AERA ENERGY, LLC
SAN ARDO 2024 WELLS PROJECT
MONTEREY COUNTY, CALIFORNIA

January 2026

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Project Name:

San Ardo 2024 Wells Project

Lead Agency Name and Address:

Department of Conservation, California Geologic Energy Management Division
Attn: San Ardo 2024 Wells Project
715 P Street MS 19-06
Sacramento, CA 95814

Contact Person, Phone Number, and Email Address:

Christine Roybal, 916-268-2535
Christine.Roybal@conservation.ca.gov
Attn: San Ardo 2024 Wells Project

Project Proponent Name and Address:

Aera Energy, LLC
10000 Ming Avenue
Bakersfield, CA 93311

Project Description:

Aera Energy LLC (Aera) has applied to the California Department of Conservation, Geologic Energy Management Division's (CalGEM) for permits to drill six new cyclic steam injection wells and two new steamflood injection wells within the San Ardo Oil Field in Monterey County, California.

The project includes the drilling of 6 new cyclic steam injection wells and 2 new steamflood injection wells, some potential grading on existing well pads, and the installation of new pumping units and flowlines. The impacts of this project are addressed in this Initial Study/Mitigated Negative Declaration (IS/MND).

Project Location:

The project is in Monterey County, California, approximately five miles south of the town of San Ardo, and 20 miles north of the City of Paso Robles. The project area is located within the San Ardo Oil Field in Section 12, T23S, Range 10E, MDB&M on APN 423-081-018-000, in the Wunpost, California United States Geological Survey (USGS) 7.5-minute topographic quadrangle (Figure 1). The primary entrance to the oil field is west of U.S. Highway 101 on Wunpost Road, or alternately by Sargent Canyon Road. Access to the project area is available via Sargents Road. Figure 3 depicts the proposed wells within the lease area. The project would be on private land.

Findings:

It is hereby determined that based on the information contained in the attached Initial Study, the project, with implementation of the mitigation measures listed therein, would not have a significant effect on the environment. Mitigation measures necessary to avoid the potentially significant impacts on the environment are included in the Initial Study, which is hereby incorporated and fully made part of this Mitigated Negative Declaration. Aera has reviewed and agreed to implement all mitigation measures in the Initial Study. A Mitigation Monitoring and Reporting Plan (MMRP) containing each mitigation measure in this IS/MND has been prepared for adoption by the Department of Conservation, as the lead agency, and all mitigation measures, implemented as required and as outlined in the MMRP, will be incorporated as Conditions of Approval in all permits for the project to ensure that mitigation measures are implemented, as required.

Pursuant to Section 21082.1 of the California Environmental Quality Act, the Department of Conservation has independently reviewed and analyzed the IS/MND for the proposed project and finds that this document reflects the independent judgment of the Department of Conservation. The Department of Conservation also confirms that the project mitigation measures detailed in this document are feasible and will be implemented as stated in the IS/MND.

_____ _____

Douglas Ito Date

Section 1 Introduction

Aera Energy LLC (Aera) has applied to the California Department of Conservation, Geologic Energy Management Division (CalGEM) for permits to drill eight new wells, including six cyclic steam injection wells and two steamflood injection wells within the San Ardo Oil Field in Monterey County, California.

Stantec assisted with the preparation of this Initial Study (IS) on behalf of and with critical review, input, and policy expertise of CalGEM pursuant to the California Environmental Quality Act (CEQA) (Public Resources Code, § 21000, et seq.) and the CEQA Guidelines (Title 14, California Code of Regulations, § 15000, et seq.).

1.1 Summary of the Proposed Project

Aera proposes to drill eight new wells subject to submission of Notices of Intention to CalGEM. Upon issuance of permits by CalGEM, Aera would drill and complete six new cyclic steam injection wells and two steamflood injection wells situated on two existing multi-well pads located on the Orradre Lease in Section 12, T23S, R10E of the seven square-mile San Ardo Oil Field operated by Aera (project area), and connected via new flow lines to existing infrastructure within the project area. The wells would be drilled in accordance with Chapter 1, Division 3 of the Public Resources Code.

1.2 Objectives of the Project

The objective of the proposed project is to continue the extraction of non-renewable fossil fuels from the subsurface of the earth for private profit by drilling, completing, operating, and maintaining six new cyclic steam injection wells and two new steamflood injection wells within the existing San Ardo Oil Field in Monterey County, California. Drilling, completing, operating, and maintaining the wells in Monterey County constitutes the proposed project. CalGEM has determined that drilling, reworking, and abandoning wells are discretionary actions subject to the provisions of CEQA.

CalGEM's objective is to respond to Aera's proposal. As the CEQA lead agency for the project, the Department of Conservation, acting through CalGEM, is analyzing the project as a whole. The project includes the drilling of eight wells, the potential grading of existing multi-well pads, and the installation of new flowlines to existing facilities. With project implementation, oil and gas production and maintenance activities would occur, including the construction of new flowlines and pumping units. The timing for plugging and abandoning the wells, as well as decommissioning the attendant production facilities, and

restoring the well pad sites would require separate CalGEM permits and associated CEQA analysis.

1.3 Purpose of the Environmental Assessment

This IS was prepared to evaluate the potential environmental effects of the proposed project and support CalGEM's decision-making regarding Aera's proposal to drill the wells. An additional environmental assessment will be required regarding plugging and abandoning the wells and related work.

1.4 Other Agency Actions

CalGEM has permitting authority for this proposed project on private land in Monterey County.

On May 8, 1980, Aera obtained a conditional use permit (CUP) from Monterey County to conduct oil and gas operations in the San Ardo Oil Field.

Section 2 Project Description

Aera has proposed to drill and complete eight new wells within the San Ardo Oil Field.

2.1 Project Location

The project area is located approximately five miles south of the town of San Ardo, and 20 miles north of the City of Paso Robles. Specifically, the project area is located within the San Ardo Oil Field in Section 12, T23S, Range 10E, MDBM, in the Wunpost, California United States Geological Survey (USGS) 7.5-minute topographic quadrangle (Figure 1). The primary entrance to the oil field is west of U.S. Highway 101 on Wunpost Road, or alternately by Sargent Canyon Road. Access to the project area is available via Sargents Road. The nearest sensitive receptors to the project area (residences) are over one mile from the proposed wells (Figure 2).

2.2 Current Oil and Gas Operations

The San Ardo Oil Field is an active oil field. The field is developed with 886 active wells operated by Aera and four other operators.

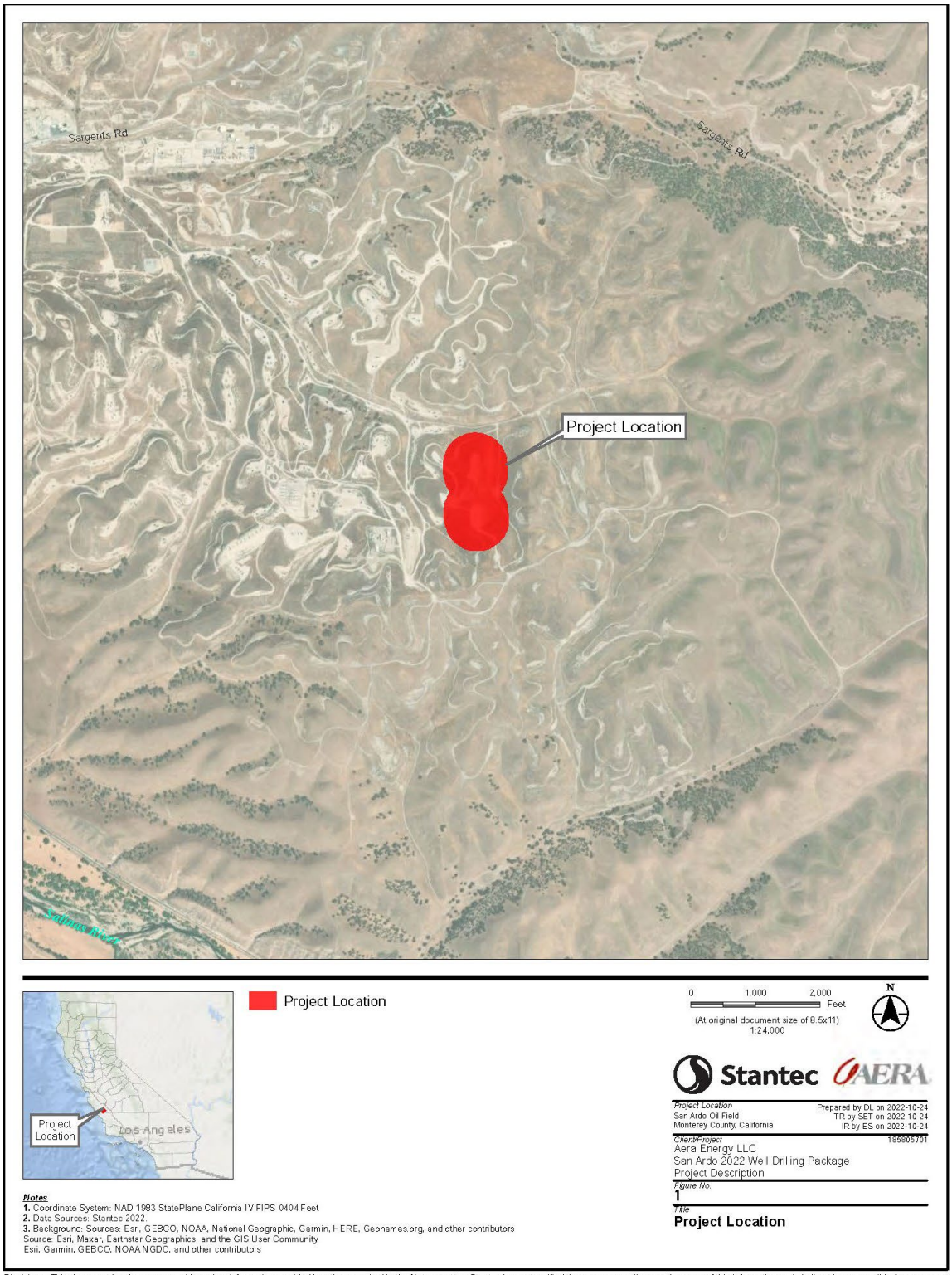

Figure 1 – Project Location Map (created October 24, 2022)

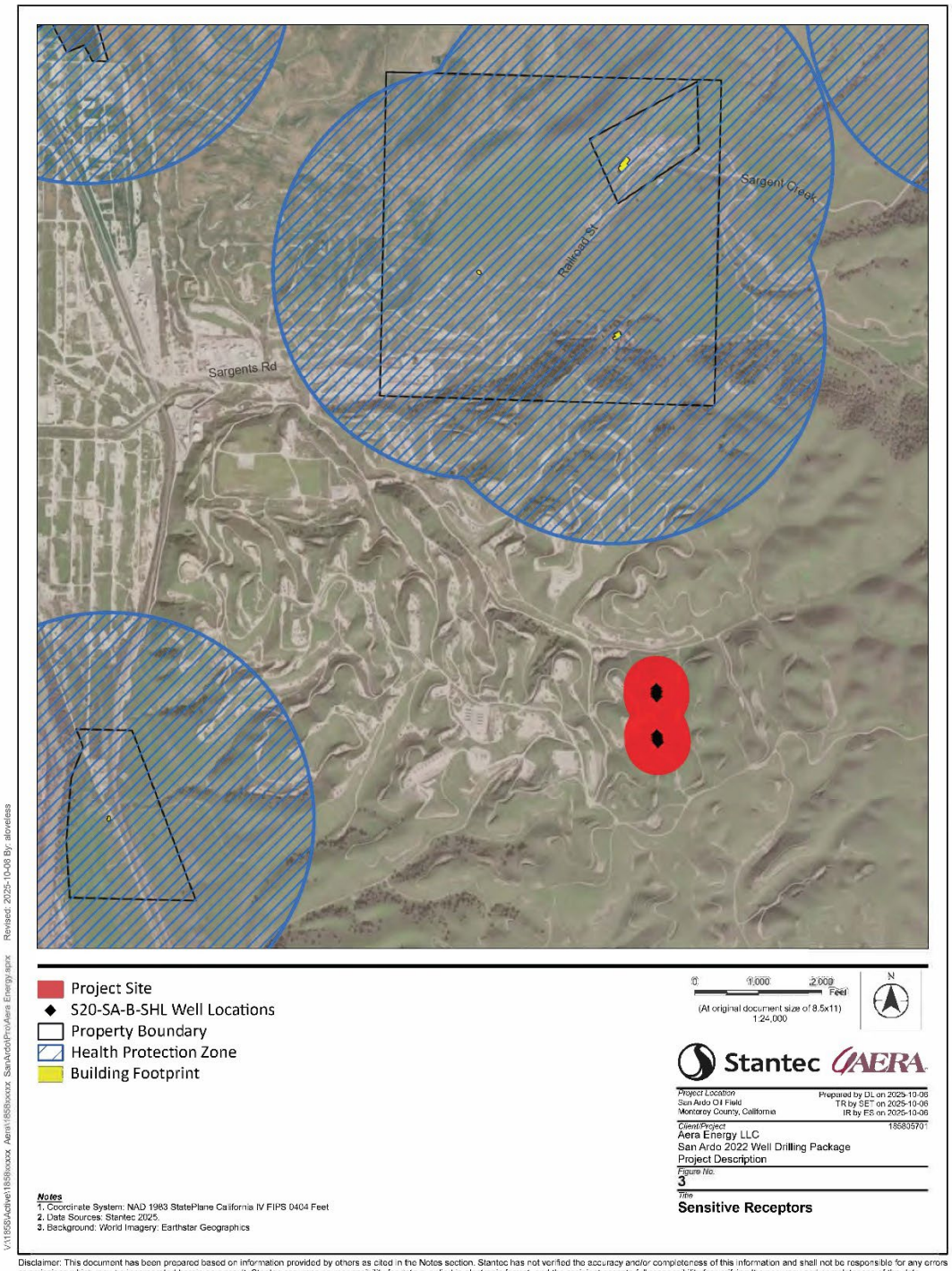

Figure 2 – Location of Sensitive Receptors in Relation to the Project Area (created October 6, 2025)

2.3 Project Components

The project would be constructed on two existing multi-well pads in a densely developed oil field on a lease experiencing active fossil fuel exploitation. The approximately 1.5 acre and 1.4 acre well pads would accommodate the drilling rig and associated support equipment and materials during the drilling and operation of the proposed wells. A plot plan of the well pads and associated equipment is shown in Figure 3. New pumping units and flowlines will be constructed for the cyclic steam injection wells, while new flowlines (injection lines) will be constructed for the steamflood injection wells.

The new above ground flowlines would be constructed leading from the wells to existing on-pad group line headers that are connected to off-site treatment (e.g., separation) or steam generation facilities, which then lead to Aera's centralized production facilities. The produced oil will be shipped via trucks from Aera's centralized production facilities, and produced water will be reinjected into the same reservoir.

2.4 Project Construction

Due to the complexity of drilling and the hazards associated with leaving a well unattended during the drilling process, drilling operations are typically conducted 24 hours per day. Drilling activities will be performed seven days per week.

Construction would occur in five phases, listed below per well, totaling approximately 120 operational days from start to finish. Construction activity would be limited to approved areas of disturbance during and following project implementation.

- Well Pad Preparation/Grading (1-2 days)
- Rig Setup/Well Drilling/Rig Decommission (1-6 days)
- Well Completion (1-2 days)
- Site Completion / Facilities Construction (1-5 days)

A drilling crew of approximately 12 contractors, who would typically be on-site for 12-hour shifts, one starting at noon (12:00) and the other starting at midnight (0:00), would be required to complete the construction phase of the proposed project. Construction crews would mobilize from the Monterey County and North San Luis Obispo County region. Operations that occur 24/7 would always have facility personnel occupying and monitoring the project area. Tables 2-1 and 2-2 below list the equipment that would be used to level each well pad, drill each well, and install the flowlines. Temporary equipment for the proposed

project includes a drilling rig, backhoe, crane, crew vehicles, pump trucks, and drilling rig support equipment. Various mobilization and transport equipment is also anticipated on the site, including vehicles that transport people and material.

During site preparation activities, some minor grading within the approximately 1.5-acre and 1.4-acre existing well pads may be required to establish a level surface to establish a solid foundation for the drilling rig and temporary production facilities. Topsoil would be stabilized, consistent with the Monterey Bay Air Resources District (MBARD) Rules 400 and 403 requirements. There would be no new grading in undisturbed areas as the well pads are already in-place.

Nighttime lighting may be used during construction and drilling operations but would be removed following completion of the project. Where necessary, the grading phase would include dirt work to level the well pads, as well as drilling and setting the well conductor, cellar, rat hole, and mouse hole. The rig setup phase would consist of mobilization of the rig onto the well pad sites. The drilling phase would consist of drilling and various tasks associated with the drilling, including installation of blowout prevention equipment, cementing, mudlogging, etc. The rig decommission phase would consist of the de-mobilization of the rig from a well pad site. The facilities construction phase would include the installation of flowlines and pumping units. More specifically, new pumping units and flowlines would be constructed for the cyclic steam injection wells. New steam injector well heads and flowlines would be constructed for the steamflood injection wells. New above ground flowlines would be constructed leading from the wells to existing on-pad group line headers that are connected to off-site treatment or steam generation facilities, located approximately 300 feet to 400 feet to the west of proposed well locations. All flow lines will be installed within existing disturbed areas.

Well drilling would involve approximately 5-7 days of equipment use per well. The well pads would accommodate the drilling rig and associated support equipment and materials during the drilling and operation of the proposed wells. A low solids non-dispersed mud system containing bentonite, water, non-hazardous polymer, and nonreactive lost circulation materials (e.g., sawdust, nut plug, and prima-seal) would be used in drilling operations. Used drilling fluid (drilling mud) would be collected in portable tanks located at the well pads. Drilling mud and completion water from this project will be transported to Aera's Belridge facility, located approximately 96 miles from the San Ardo Oil Field, for processing.

Construction of the eight wells will require a total of approximately 193,200 gallons of water. This includes, on a per well basis, approximately 11,550 gallons during drilling activities and 12,600 gallons during well completion activities. Dust suppression will be performed continuously during construction activities, for a total of approximately 58,800 gallons, or at most 10,500 gallons per day.
The water would be sourced from three existing water source wells owned and operated by Aera located within the Salinas Valley Groundwater Basin. Two wells are used for utility water; one well is used for potable water. Groundwater will be used during the project for: the well pad sites, dust control, drilling, and completion. Vacuum trucks will be used to transport the drilling and completion water to/from the respective locations, totaling approximately two vehicle trips per day.

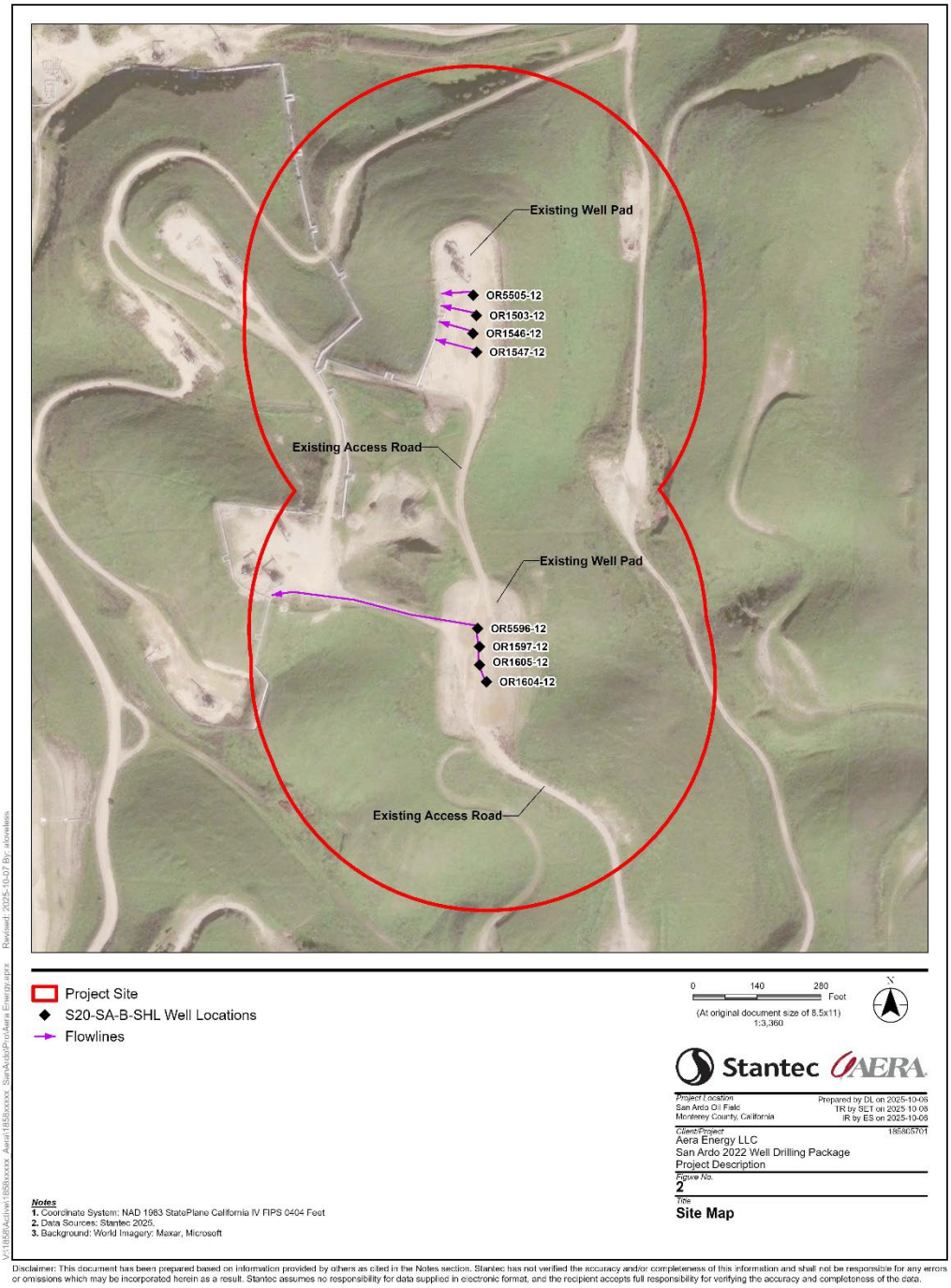

Figure 3 – Proposed Well Locations and Plot Layout

Table 2 – Proposed Well Locations

Oil Field	Initial Study Project	Well Name	Surface Latitude	Surface Longitude
San Ardo	S20-SA-B	OR1503-12	35.939040	-120.835898
San Ardo	S20-SA-B	OR1546-12	35.938932	-120.835919
San Ardo	S20-SA-B	OR1547-12	35.938820	-120.835889
San Ardo	S20-SA-B	OR1597-12	35.937053	-120.835828
San Ardo	S20-SA-B	OR1604-12	35.936842	-120.835772
San Ardo	S20-SA-B	OR1605-12	35.936943	-120.835825
San Ardo	S20-SA-B	OR5505-12	35.939162	-120.835921
San Ardo	S20-SA-B	OR5596-12	35.937162	-120.835844

Table 2-1 Site Preparation Equipment Required for Each Drill Pad

Project Activity	Equipment	Quantity	Days of Operation	Total Operating Hours/Day	Horsepower
Grading (1-2 Days)	Dozer	1	1	4	207
	Water Wagon	1	1	4	407
	Trucks Utility	2	2	5	130
Rig Setup/Well Drilling/Well Decommissioning (1-6 Days)	Drill Rig	1	6	22	515
	Generator	1	6	23	355
	Mud pump	1	6	12	755
	Forklift	1	6	4	174
	Sump	1	6	N/A	N/A
	Mud Pit	1	6	N/A	N/A
	Drive Pipe Trailer	1	6	N/A	N/A
	Cat Walk	1	6	N/A	N/A
	Casing Racks	1	6	N/A	N/A
	Dog House	1	6	N/A	N/A
	Accumulator	1	6	N/A	N/A
	Water Tank	4	6	N/A	N/A
	Utility Trailers	3	6	N/A	N/A
	Tubular Delivery Truck	1	1	3	475
	Wireline Truck	1	1	12	475
	Cement Pump Truck	2	2	3	475

Project Activity	Equipment	Quantity	Days of Operation	Total Operating Hours/Day	Horsepower
	Cement Bulk Truck	2	2	3	475
	Vacuum Truck	4	6	4	475
Well Completion (1-2 Days)	Completion Rig	1	1	12	380 S/450 D
	Rig Pump	1	1	3	215 KP/475 MP
	Oil/Gas Separator	N/A	N/A	N/A	N/A
	500 BBL Portable Tanks	N/A	N/A	N/A	N/A
	External Combustion Testing Flare (Max heat output of less than/or equal to 5 mmbtu/day, natural gas fired)	N/A	N/A	N/A	N/A
Site Completion/ Facility Construction (1-5 Days)	Backhoe (580N)	1	5	8	79
	Loader (962K)	1	5	8	221
	Crane	1	5	8	475
	Bucket Truck	1	1	8	330
	Line Truck	1	2	8	400
	Digger Derrick Truck	1	1	8	400
	Welding Machine	1	1	6	24
	Portable Generator/Transfer Pump	1	1	2	13

Following well completion, the well pads would be cleared of unnecessary items.

Aera and vehicles hauling equipment and materials, would use the existing Sargents Road to access the project area. Trips for construction activities were modeled using 12 workers per day, and were based on travel from the Monterey County and North San Luis Obispo County region at 50 miles each way.

Table 2.4-2 summarizes the vehicle trips associated with project activities. Where project-specific information is not known, the trip lengths for contractor and haul trips during construction are based on assumptions for Monterey County and North San Luis Obispo County as included in the CalEEMod database. Workers are assumed to travel from the surrounding communities in the Monterey County and North San Luis Obispo County area. Water transport is included in the haul trucks category.

Table 2.4-2 Construction Worker, Vendor, and Hauling Trips by Phase

Phase Name	Workers		Vendors		Haul Trucks	
	Number of One Way Trips Per Well	One Way Length (miles)	Number of One Way Trips Per Well	One Way Trip Length (miles)	Number of One Way Trips Per Well	One Way Trip Length (miles)[3]
Grading (1-2 Days)	N/A	N/A	N/A	N/A	N/A	N/A
Rig Setup/Well Drilling/Rig Decommission (1-6 Days)	144	50	108	55	40	50
Well Completion (1-2 Days)	12	50	N/A	N/A	N/A	N/A
Site Completion/Facility Construction (1-5 Days)	36	50	36	50	16	50

2.5 Project Operation

Following completion of construction activities, the wells would become operational. Post-construction operations for the cyclic steam injection wells includes cyclic steam prior to initial production (15,000 - 30,000 barrels of steam per well, estimated approximately 40 days of injection per well).

Post-drilling operations for steamflood injection wells may receive a "Cup Wash Acid Stimulation" which is meant to dissolve the sediments and mud solids within the pores that are inhibiting the permeability of the immediate target injection area. No hydraulic fracturing (fracking) will be involved in the proposed well stimulation treatment. Aera would utilize standard "Pre-Treatment Calculations" for each acid stimulation and comply with the provisions added by Senate Bill 4 found in Division 3, Chapter 1, Article 3 of the Public Resources Code, as well as implementing regulations such as C.C.R. section 1761, which require planned acid volumes that are below the acid volume threshold, pump injection pressures that are below the formation fracture gradient, and associated reporting.

Injection operations for the proposed wells is authorized by an existing Underground Injection Control (UIC) Project Approval Letter issued by CalGEM (UIC Project No. 64403002 for steam injection and UIC Project No. 64403022 for cyclic steam). No expansion of the existing UIC Project(s) is being requested with these wells. Injected steam is generated from produced water from Aera Energy's existing oil and gas production operations within the San Ardo Oil Field.

The operation of the eight proposed wells would not result in a significant expansion of production operations and is intended to support current, non-renewable fossil fuel extraction at the San Ardo Oil Field for monetary profit. Other than the new flowlines and pumping units, no additional facilities would be required to support the proposed project. Following completion of construction activities, the wells would be operated under CalGEM permit requirements by the existing field crew at the San Ardo Oil Field and would not require hiring additional crew members. Operational activity for each well would involve one to two crew members visiting each well pad site per day in worker trucks. In addition, up to one well workover at each well is expected to occur every 1.5 years, with a duration of two days per workover per well. Workover operations would involve use of one workover rig, one medium-duty truck, and six worker vehicles over two 12-hour workdays.

Permanent equipment necessary for operation of the wells would include pumping units, powerlines, flowlines, and steam lines.

2.6 Project Design Features

Table 2.6-1 below presents a list of project design features (DFs) and/or applicable regulatory requirements (RRs) that contribute to minimizing the potential environmental impacts of the project.

Table 2.6-1 Project Design Features or Regulatory Requirements

#	Design Feature or Regulatory Reference	Potential Impact Category
RR-AIR-1	Compliance with MBARD Rule 200 (Authority to Construct and Permit to Operate)	Air Quality
RR-AIR-2	Compliance with MBARD Rule 201 (Sources Not Requiring Permits)	Air Quality
RR-AIR-3	Compliance with MBARD Rule 207 (Review of New or Modified Sources)	Air Quality
RR-AIR-4	Compliance with MBARD Rule 400 (Visible Emissions)	Air Quality
RR-AIR-5	Compliance with MBARD Rule 402 (Nuisances)	Air Quality
RR-AIR-6	Compliance with MBARD Rule 403 (Particulate Matter)	Air Quality
RR-AIR-7	Compliance with MBARD Rule 1000 (Permit Guidelines and Requirements for Sources Emitting Toxic Air Contaminants)	Air Quality
RR-AIR-8	Compliance with MBARD Rule 1003 (Air Toxic Emissions Inventory and Risk Assessments)	Air Quality

RR-AIR-9	Compliance with leak detection and repair (LDAR) practices in accordance with MBARD and CARB regulations	Air Quality
DF-EN-1	The project includes several energy- and fuel-efficient design features	Energy
RR-EN-1	Compliance with CARB anti-idling and emissions requirements specified in 13 C.C.R. § 2485	Energy
RR-EN-2	Compliance with CARB Off-Road Diesel Regulations as required by 23 C.C.R. § 2449	Energy
RR-GEO-1	Compliance with most recently adopted building codes	Geology and Soils
RR-GHG-1	Compliance with Measure I-2 of the AB 32 Scoping Plan	GHGs
RR-GHG-2	Compliance with the AB 32 Cap-and-Trade Program	GHGs
RR-GHG-3	Compliance with federal New Source Performance Standards specified in 40 CFR Part 60	GHGs
RR-GHG-4	Compliance with California's Oil and Gas Regulation	GHGs
RR-GHG-5	Compliance with California Emission Standards for Off-road Compression-Ignition Engines as specified in 13 C.C.R. § 2423(b)(1)	GHGs
DF-HAZ-1	The project will implement existing procedures to avoid and mitigate fire-related impacts	Hazards and Hazardous Materials
DF-HAZ-2	The project would comply with the Monterey County Multi-Jurisdictional Hazardous Mitigation Plan	Hazards and Hazardous Materials
RR-HAZ-1	Compliance with provisions added by Senate Bill 4, as well as implement regulations including 14 C.C.R. § 1761.	Hazards and Hazardous Materials
RR-HAZ-2	Compliance with 14 C.C.R. § 1774.2, which requires a Pipeline Management Plan	Hazards and Hazardous Materials
RR-HAZ-3	Compliance with 14 C.C.R. § 1722.9, which requires a Spill Prevention Control and Countermeasures Plan, and the Oil Pollution Prevention requirements of the Clean Water Act (40 CFR Part 112).	Hazards and Hazardous Materials
RR-HAZ-4	Compliance with applicable regulations and requirements governing fire safety	Hazards and Hazardous Materials
DF-HYDRO-1	The project would involve use of existing earthen well pads	Hydrology/Water Quality
DF-HYDRO-2	Water for the project would be obtained from existing water source wells and would not conflict with the UPSGSP	Hydrology/Water Quality

RR-HYDRO-1	Compliance with stormwater discharge requirements as specified in 40 C.F.R. §122.26(c)(1)(iii)	Hydrology/Water Quality
RR-HYDRO-2	Aera will obtain coverage under the Construction General Permit (Construction General Permit Order 2009-0009-DWQ, as amended by 2010-00014-DWQ and 2012-0006-DWQ) in advance of construction activity, if required	Hydrology/Water Quality
DF-UTL-1	Waste generated during drilling of the wells would be trucked offsite for disposal in an approved landfill	Utilities and Service Systems
DF-UTL-2	Drilling mud and cuttings and water generated during the construction phase will be transported off-site for disposal at an approved disposal facility	Utilities and Service Systems

Section 3 Initial Study Environmental Checklist

This checklist has been prepared to document CalGEM's evaluation of the proposed project and the determination of the appropriate level of environmental review under CEQA. The checklist used for the environmental evaluation was adopted from the environmental checklist form presented in Appendix G of the CEQA Guidelines. A discussion is provided for each environmental issued identified in the checklist.

For this checklist, the following designations are used:

- **No Impact** — The project would not have any measurable impact on the environment.
- **Less than Significant Impact** — The project may have the potential for affecting the environment, although these impacts will be below levels or thresholds that CalGEM, Monterey County, or other responsible agencies consider to be significant.
- **Less than Significant Impact with Mitigation** — The project may have the potential to generate impacts that will have a significant impact on the environment. However, the level of impact may be reduced to a less than significant level with implementation of mitigation measure(s).
- **Potentially Significant Impact** — The project may result in environmental impacts that are significant and cannot be reduced to levels that are less than significant with the implementation of mitigation measures.

Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is "Less Than Significant with Mitigation Incorporated" as indicated by the checklist on the following pages

☐ Aesthetics	☐ Agriculture/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

Determination

On the basis of this initial evaluation:

☐	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
☒	I find 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.
☐	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
☐	I find 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
☐	I find 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.

Douglas Ito

Date

3.1 Aesthetics

Issues	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS — Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (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?	☐	☐	☐	☒
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

3.1.1 ENVIRONMENTAL SETTING AND BASELINE

The project area is located within the existing San Ardo Oil Field. The project area does not contain scenic vistas, scenic resources, or historic elements. There are no State Scenic Highways in the vicinity to the project area (Caltrans, 2020). The nearest highway eligible for State Scenic Highway designation is Route 101 near San Lucas, approximately 15 miles from the project area.

3.1.2 ENVIRONMENTAL ASSESSMENT

a, b) As noted above, the project area is not located near, nor visible from, scenic vistas, scenic resources, including, but not limited to, trees, rock

outcroppings or historic buildings, or scenic highways on the project area or vicinity. Therefore, the project would have ***no impact*** to scenic vistas or state scenic highways.

c) The project is on private land and is not a designated scenic resource. The project area is not visible to the public from any major or secondary highways or roadways and is over one mile from the nearest residences. The project is located within San Ardo Oil Field Section 12, which is an active well site for the purpose of extracting oil for commercial sale. The project area consists of existing well pads and access roads and the proposed wells and facilities would have the same visual characteristics as those already present. Therefore, there would be ***no impact*** to the existing visual character or quality of public views of the site.

d) Project construction and operations activities would be typical of those already present at an active oil field. Lighting will be used during construction activity 5 days per well for a limited time but would be removed following construction at any given drill site. The nearest residents and public roadways to the project area are over one mile away; therefore, while nighttime lighting may be visible, any effects would be minimal and temporary. No permanent night lights would be installed at the existing well pad sites. No other sources of significant lighting or glare are anticipated. As such, the project would result in a ***less than significant impact*** with respect to light and glare.

3.2 Agriculture and Forestry Resources

Issues	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
II. AGRICULTURAL 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:				
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?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
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 Protection (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒

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?	☐	☐	☐	☒

3.2.1 ENVIRONMENTAL SETTING AND BASELINE

The project area is within to the existing San Ardo Oil Field on land mapped as "Other Land" on the Farmland Mapping and Monitoring Program of the California Resources Agency maps (CDOC 2022a). The project area is zoned as Heavy Industrial (HI) Mineral Extraction, with the removal of oil and gas being a permitted use under this designation pursuant to Title 21, Chapter 21.28 of the Monterey County Code (Monterey County 2025).

The project area does not contain Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. The proposed project area and adjacent parcels of land are enrolled in a nonprime Williamson Act Contract (Figure 4.)

The project area does not contain 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)).

3.2.2 ENVIRONMENTAL ASSESSMENT

a) The project area does not contain Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. As such, ***no impacts*** to these agricultural resources would occur.

b) The existing zoning of the project area is HI Mineral Extraction. As the project consists of the installation of eight new wells within an active oil field, the project would not alter the nature of the existing uses nor conflict with the applicable zoning. The proposed well locations are also located on nonprime Williamson Act Contract lands. However, on May 8, 1980, Aera obtained a conditional use permit (CUP) from Monterey County to conduct oil and gas operations in the San Ardo Oil Field. In addition, there would be no new ground disturbance as a result of project implementation. Therefore, there would be ***no impact*** to existing agricultural zoning, uses, or Williamson Act contracts**.**

c, d) The project area does not contain 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)). As such, ***no impact*** to such forest/timber resources would occur.

e) All potential impacts would be limited to the project area itself. No disturbance would occur outside of the project area. There is no farmland or forest land in the project vicinity that would be converted by the proposed project. Therefore, ***no impact*** would occur.

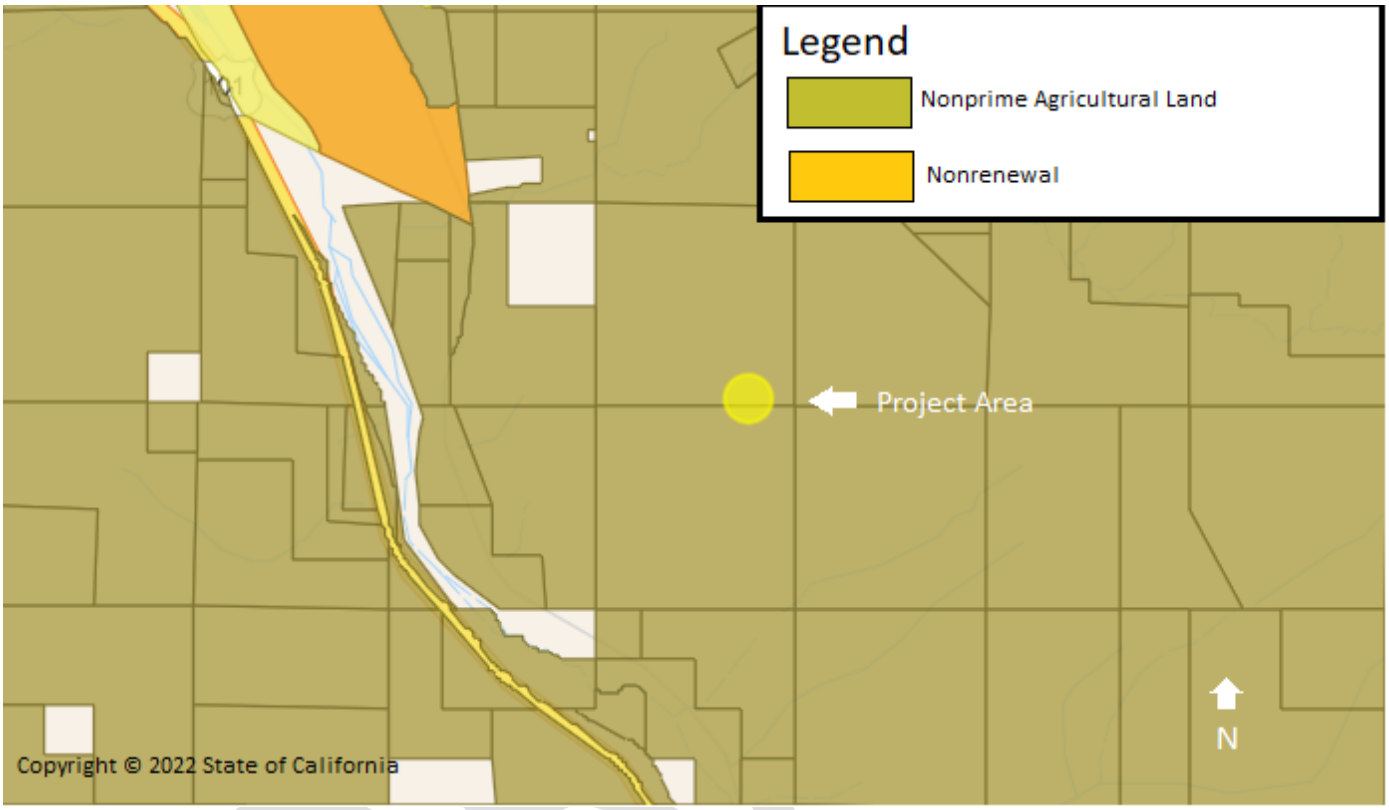

Figure 4 - Williamson Act Contract Areas and Proposed Project Area

(created August 18, 2025)

3.3 Air Quality

Issues	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
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?	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

3.3.1 ENVIRONMENTAL SETTING AND BASELINE

The project area is located within the Monterey Bay Air Basin, also known as the North Central Coast Air Basin (NCCAB). At the state level, air regulatory duties lie with the California Air Resources Board (CARB) and at the federal level with the U.S. Environmental Protection Agency (EPA), Region 9.

The federal Clean Air Act (CAA), as amended, and the California CAA contain the primary provisions relating to air quality. The EPA, CARB, and regional air districts have issued rules to implement federal and state CAAs. EPA uses "criteria pollutants" as indicators of air quality and has established for each of them a maximum concentration above which adverse effects on human health and the environment may occur. These threshold concentrations are called National Ambient Air Quality Standards (NAAQS). One set of limits (primary standard) protects health; another set of limits (secondary standard) is intended

to prevent environmental and property damage. Under the federal CAA, the EPA has established NAAQS for seven criteria pollutants: ozone, respirable particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), carbon monoxide (CO), nitrogen dioxide, lead, and sulfur dioxide (SO_2). California has established state Ambient Air Quality Standards for the same criteria pollutants, plus an additional three pollutants (visibility reducing particulates, sulfates, and hydrogen sulfide (H_2S)). States may have standards that are more restrictive than the federal thresholds, but they cannot be less restrictive. Although more stringent, the state standards have no specific dates for attainment, unlike federal standards. Under state law, designations are made by pollutant, rather than by averaging time. A geographic area that meets or exceeds the primary standard is called an attainment area; areas that do not meet the primary standard are called nonattainment areas. Table 3.3-1 shows the attainment status of the NCCAB for the state and federal standards. As shown in the table, the NCCAB currently exceeds California Ambient Air Quality Standards for PM_{10}, however, it is in attainment of the federal NAAQS for PM_{10}.

Table 3.3-1 California and National Ambient Air Quality Standards

Pollutant	Averaging Period	California Standard	Federal Standard	Attainment Status	
				California	Federal
Ozone (O_3)	1 hour	0.09 ppm (180 µg/m³)	revoked	Attainment	--
	8 hours	0.070 ppm (137 µg/m³)	0.07 ppm (137 µg/m³)	Attainment	Attainment
Respirable Particulate Matter (PM_{10})	24 hours	50 µg/m³	150 µg/m³	Nonattainment	Attainment
	Annual	20 µg/m³	revoked	Nonattainment	--
Fine Particulate Matter ($PM_{2.5}$)	24 hours	none	35 µg/m³	Attainment	Attainment
	Annual	12 µg/m³	9 µg/m³	Attainment	Attainment
Carbon Monoxide (CO)	1 hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	Monterey Co. – Attainment San Benito Co. – Unclassified Santa Cruz Co. - Unclassified	Monterey Co. – Attainment San Benito Co. – Attainment Santa Cruz Co. - Attainment
	8 hours	9 ppm (10 mg/m³)	9 ppm (10 mg/m³)	Monterey Co. – Attainment San Benito Co. – Unclassified	Monterey Co. – Attainment San Benito Co. – Attainment

Pollutant	Averaging Period	California Standard	Federal Standard	Attainment Status	
				California	Federal
				Santa Cruz Co. - Unclassified	Santa Cruz Co. - Attainment
Nitrogen Dioxide (NO_2)	1 hour	0.18 ppm (338 µg/m^3)	0.100 ppm (188 µg/m^3)	Attainment	Attainment
	Annual	0.030 ppm (56 µg/m^3)	0.053 ppm (100 µg/m^3)	Attainment	Attainment
Lead (Pb)	30 Day Average	1.5 µg/m^3	--	Attainment	--
	Rolling three-month period, evaluated over a three-year period	--	0.15 µg/m^3	--	Attainment
Sulfur Dioxide (SO_2)	1 hour	0.25 ppm (655 µg/m^3)	0.075 ppm (196 µg/m^3)	Attainment	Attainment
	3 hours	--	0.5 ppm (1300 µg/m^3)	--	Attainment
	24 hours	0.04 ppm (105 µg/m^3)	0.14 ppm (for certain areas)	Attainment	--
Hydrogen Sulfide (H_2S)	1 Hour	0.03 ppm (42 µg/m^3)	--	Unclassified	--
Sulfates	24 hours	25 µg/m^3	--	Attainment	--
Vinyl Chloride	24 hours	0.010 ppm (26 µg/m^3)	--	Attainment	--
Visibility-Reducing Particles	8 hours	Extinction coefficient of 0.23 per kilometer (visibility of ten miles or more due to particles when relative humidity is less than 70 percent)	--	Unclassified	--

Notes: ppm = parts per million; ppb = parts per billion; mg/m³ = milligram per cubic meter; µg/m³ = micrograms per cubic meter; "--" = no standard.

The project area is within the EPA Pacific Southwest Region 9 Planning Area. A State Implementation Plan (SIP) has been prepared for the planning area, which identifies sources of emissions and control measures to reduce emissions. In 2022,

CARB updated the State Strategy for achieving emissions reductions toward bringing the area into attainment with federal standards for ozone and $PM_{2.5}$.

As indicated, the NCCAB is a nonattainment area for the CAAQS for PM10. MBARD's *2005 Report on Attainment of the California Particulate Matter Standards in the Monterey Bay Region* (Particulate Matter Plan), which was adopted in December 2005 includes review of the basin's air monitoring emissions data with characterization of sources that likely cause or contribute to monitored violations of the standard in the NCAAB. The purpose of the Particulate Matter Plan (December 2005) is to fulfill the requirements of Senate Bill 655, which was approved by the California Legislature in 2003 with the objective of reducing public exposure to particulate matter. The legislation requires CARB, in conjunction with local air pollution control districts, to adopt a list of the most readily available, feasible, and cost-effective control measures that could be implemented by air pollution control districts to reduce ambient levels of particulate matter in their air basins (MBARD 2005). The Particulate Matter Plan's activities include control measures for fugitive dust, public education, administrative functions, and continued enhancements to the MBARD's smoke management and emission reduction incentive programs.

CAA regulations also address the release of hazardous air pollutants (HAPs): chemicals that are known or suspected to cause cancer or other serious health effects, such as reproductive effects, birth defects, or adverse environmental effects. Some compounds of this type are regulated as Toxic Air Pollutants by the State of California. The EPA currently lists 188 compounds as HAPs, some of which, such as benzene, toluene, and formaldehyde, can be emitted from oil and gas development operations. NAAQS have not been set for HAPs; rather HAP emissions are controlled by source type- or industrial sector-specific regulations. H_2S gas is not regulated under the NAAQS or as a HAP; however, it is known to be hazardous and is monitored for health and safety at oil and gas sites.

Once air quality attainment demonstration plans are adopted, the reductions necessary to meet the respective reduction mandates contained in the plan(s) are achieved through prohibitory rules created and enforced by the local air quality board/Air Pollution Control District. Compliance with applicable rules, regulations, and land use and zoning requirements ensures attainment and maintenance of state and national air quality standards and regulations.

The NCCAB is designated as nonattainment of state health-based air quality standards for particulate matter (PM10). To meet California Clean Air Act requirements, the MBARD has adopted an attainment plan for accomplishing attainment for particulate matter within the district. The plan contains control measures for reducing particulate matter, including dust from construction and travel on unpaved roads (MBARD, 2005).
In addition, MBARD regulates toxic air contaminants (TACs) from new or modified sources under Rule 1000 (Permit Guidelines and Requirements for

Sources Emitting TACs) (**RR-AIR-7**) and a board-approved protocol. These apply to any source that requires a permit to construct or operate pursuant to Regulation II (Permits), Rule 200 and has the potential to emit carcinogenic or noncarcinogenic TACs. TACs are listed in Title I or are established by the Office of Environmental Health Hazard Assessment (OEHHA), California Air Pollution Control Officers Association (CAPCOA) Risk Assessment Guidelines, U.S. Environmental Protection Agency, or Rule 1000. Rule 1000 also requires sources of carcinogenic TACs to install best control technology and reduce cancer risk to less than one incident per 100,000 population. Relatedly, MBARD's 2016 Guidelines indicate that the thresholds used to evaluate human health impacts are in accordance with Rules 1000 and 1003 (Air Toxics Emissions Inventory and Risk Assessments). Accordingly, a project would have a significant impact if: the hazard index is greater than 1 for acute or chronic impacts and/or if the cancer risk is greater than 10 in 1 million, which is equivalent to the 1 in 100,000 cancer risk cited in Rule 1000.

Further, California enacted the Air Toxics Hot Spots Information and Assessment Act of 1987, with the goal of collecting emission data, identifying facilities having localized impacts, ascertaining health risks, notifying nearby residents of significant risks, and reducing those significant risks to acceptable levels.

The following MBARD rules are applicable to the proposed project:

- Regulation II (Permits):
    - Rule 200 (Authority to Construct and Permit to Operate): The purpose of this rule is to require any person constructing, altering, replacing or operating any source operation which emits, may emit, or may reduce emissions to obtain an Authority to Construct or a Permit to Operate. (See **RR-AIR-1**.)
    - Rule 201 (Sources Not Requiring Permits): This rule requires the registration of portable equipment in accordance with the California Statewide Portable Engine Registration Program authorized under Title 13, Article 5, Sections 2450 through 2465, California Code of Regulations. (See **RR-AIR-2**.)

- Rule 207 (Review of New or Modified Sources): The MBARD regulates criteria air pollutant emissions from new and modified stationary sources through this rule and to provide mechanisms including emissions trade-offs by which authorities to construct such sources may be granted without interfering with the attainment and maintenance of ambient air quality standards and to ensure no net increase in emissions above specified thresholds from new and modified stationary sources of all nonattainment pollutants and precursors. (See **RR-AIR-3**.)

- Regulation IV (Prohibitions):
  - Rule 400 (Visible Emissions): This rule provides limits for visible emissions for sources within the MBARD's jurisdiction. (See **RR-AIR-4**.)
  - Rule 402 (Nuisances): This rule prohibits sources creating public nuisances while operating within the MBARD jurisdiction. (See **RR-AIR-5**.)
  - Rule 403 (Particulate Matter): This rule provides particulate matter emissions limits for sources operating within the MBARD jurisdiction. (See **RR-AIR-6**.)
- Regulation X (Toxic Air Contaminants):
  - Rule 1000 (Permit Guidelines and Requirements for Sources Emitting Toxic Air Contaminants): The MBARD regulates TACs from new or modified sources under this rule, a Board-approved protocol that applies to any source that requires a permit to construct or operate pursuant to MBARD regulations and has the potential to emit carcinogenic or noncarcinogenic TACs. This rule also requires sources of carcinogenic TACs to install best control technology and reduce cancer risk to less than one incident per 100,000 population. Sources of noncarcinogenic TACs must apply reasonable control technology. (See **RR-AIR-7**.)
  - Rule 1003 (Air Toxics Emissions Inventory and Risk Assessments): This rule establishes a cancer risk of 10 in one million as significant and a hazard index greater than 1 for non-cancer risk (acute or chronic) as significant. Sources with a prioritization score that exceeds the Rule 1003 limits are considered a high priority. (See **RR-AIR-8**.)

3.3.2 ENVIRONMENTAL ASSESSMENT

a) The MBARD has adopted two sets of CEQA guidelines for criteria pollutant emissions, which contain different thresholds of significance depending on the

CEQA lead agency. *The Guidelines for Implementing the California Environmental Quality Act (2016 Guidelines)* (MBARD 2016) were written for use by the MBARD in its capacity as lead or responsible agency, whereas the *CEQA Air Quality Guidelines (2008 Guidelines)* (MBARD 2008) were written for all other lead agencies. Notably, the 2016 Guidelines include air pollutant thresholds for construction that were not included in the 2008 Guidelines. Since the MBARD is a responsible agency for this project, given that it would issue air pollution permits for generators that will be required for the project, the thresholds included in the 2016 Guidelines (see page 4) were applied to the project (MBARD 2016). The 2008 Guidelines also only included thresholds for PM10, indicating that ROG and NOx emissions would not have a significant impact on attainment and maintenance of ozone AAQS since these criteria air pollutants are accommodated in the emission inventories of state and federally required air plans. Therefore, using the 2016 Guidelines would allow for a more complete evaluation of air quality impacts from ROG, NOx, PM10, PM2.5, and CO emissions. Specifically, under the MBARD's 2016 Guidelines, a project would result in a significant impact to air quality during construction and/or operations if it results in the generation of emissions of or in excess of the thresholds presented in Table 3.3-2.

Table 3.3-2 MBARD Air Quality Significance Thresholds

Pollutant	Emissions (pounds per day)	
	Construction	Operational per Lease Area
NO_x	137	137
SO_x	150	150
PM_{10}	82	82
$PM_{2.5}$	55	55
CO	550	550
ROG (VOC)	137	137

Source: MBARD 2016 Guidelines

For the purposes of this analysis, short-term construction emissions and long-term operational emissions were determined utilizing the latest version of the CalEEMod model (version 2022.1) based on the assumptions described in Section 2, Project Description. Although no portable off-road construction diesel engines are anticipated to be needed, if used they will be registered under CARB's Statewide Portable Equipment Registration Program and meet California emission standards for off-road compression-ignition engines as specified in California Code of Regulations (C.C.R.), Title 13, section 2423(b)(1). (**RR-GHG-5**.) In addition, all off-road mobile construction equipment will be at least Tier 2.

For this analysis, it is assumed that all construction activities will be completed in a single year. The calculated unmitigated and mitigated emissions associated with construction of the project are provided in Table 3.3-3. The emissions (pounds per year) are calculated assuming that all eight wells would be drilled, with only one drilled at any one time, which would include approximately one to two days for grading, one to five days rig setup, well drilling, and rig decommissioning, one to two days for well completion, followed by one to five days for site completion construction of associated facilities (i.e., installation of flowlines, electrical, pumping units). Further, to ensure that construction emissions remain below the emissions thresholds specified in Table 3.3-2 (above), Aera would require that all portable off-road construction diesel engines are registered under CARB's Statewide Portable Equipment Registration Program and that all off-road mobile construction equipment meet Tier 2 or better. Aera would also develop and implement a fugitive dust control plan for the project in compliance with MBARD fugitive dust suppression regulations. Accordingly, Table 3.3-3 also provides the mitigated construction emissions for the project.

The annual emissions associated with operation of the well are presented in Table 3.3-4. Emissions from project operation and maintenance were modeled utilizing CalEEMod assuming that the well head pumping units will be powered by electric motors connected to Aera's existing San Ardo electrical infrastructure.

Table 3.3-3 Construction Criteria Pollutant Unmitigated and Mitigated Emissions

Pollutant	Unmitigated Construction Emissions (Pounds/Day)	Mitigated Construction Emissions (Pounds/Day)	Above MBARD Threshold?
NO_x	36.12	36.12	No
SO_X	0.15	0.15	No
PM_{10}	3.29	3.29	No
$PM_{2.5}$	2.13	2.13	No
CO	33.59	33.59	No
ROG (VOC)	4.5	4.5	No

Source: CalEEMod 2024 Emissions Data.

Table 3.3-4 Operational Criteria Pollutant Unmitigated and Mitigated Emissions

Pollutant	Unmitigated Operational Emissions (Tons/Year)	Mitigated Operational Emissions (Tons/Year)	Above SJVAPCD Threshold?
NO_x	25.28	25.28	No
SO_X	0.13	0.13	No
PM_{10}	0.90	0.90	No
$PM_{2.5}$	0.8213	0.8213	No
CO	28.07	28.07	No
ROG	3.161	3.161	No

Source: CalEEMod 2024 Emissions Data.

Activities related to project implementation would not exceed MBARD's emissions thresholds. As described in Table 2.6 (DF) and Section 3.1, several MBARD rules would minimize air quality impacts, such as Rules 200 (**RR-AIR-1**), 201 (**RR-AIR-2**), 207 (**RR-AIR-3**), 400 (**RR-AIR-4**), 402 (**RR-AIR-5**), 403 (**RR-AIR-6**), 1000 (**RR-AIR-7**) and 1003 (**RR-AIR-8**). For example, compliance with Regulation IV (**RR-AIR-4**, **RR-AIR-5**, and **RR-AIR-6**) would minimize particulate emissions through implementation of a fugitive dust control plan that will involve continuously watering surfaces during construction activities in accordance with MBARD requirements. Implementation of the existing regulatory mechanisms would further minimize the increase in potential emissions related to the operation of the proposed project. Accordingly, assuming full compliance with the regulatory requirements detailed above the project would not emit criteria pollutants above MBARD's established thresholds (Table 3.3-2) and would comply with MBARD permit requirements. The operation of the wells would not conflict with or obstruct implementation of the applicable air quality plan and impacts would be ***less than significant***.

b) The project would emit criteria pollutants from the use of combustion sources such as diesel drills and completion/workover rig engines, drill pad grading equipment (e.g., dozer, water wagon, utility trucks), equipment trucks, water trucks, drill rig crew trucks/vehicles, and other equipment; through venting or fugitive losses from use of chemicals; or valves and fittings, pumps, compressors; and the well heads. Impacts to air quality would occur also during project construction as a result of soil disturbance and fugitive dust emissions.

Although the NCCAB is in non-attainment for PM10, project construction would not generate emissions above the MBARD thresholds. Therefore, the project

would have ***less than significant*** impact on cumulatively considerable pollutant increases.

c) The nearest sensitive receptor to the project area is a residence approximately 5,438 feet (1.03 miles) north of the project, as shown in Figure 2. As shown in Table 3.3-3, construction emissions would be below the MBARD thresholds. Operations would result in emissions associated with operation and maintenance of the wells.

The closest receptors to the project area include a residence approximately 5,438 feet (1.03 miles) from the project area. As noted by the California Air Resources Board (CARB, 2005), diesel particulate matter dissipates with distance from the source, primarily within the first 500 feet. Due to the localized nature of diesel particulate matter, most air districts only recommend evaluating the risks posed to sensitive receptors within 1,000 feet of a project area. The closest receptor is located approximately 5,438 feet from the project area and, as a result, the project would not result in a significant health risk. Moreover, construction of the project is short-term with each well only being constructed for a period of approximately 7 days. With 8 proposed wells, total construction duration is 56 days, and after which all well construction-related emissions would cease. The operation phase of the project will

Operation of the site, including workovers, is not anticipated to result in additional oil production rates, although fugitive dust and emissions from the flanges, pressure relief devices, and other connections associated with the wellheads will occur. However, the additional wells are not anticipated to increase TAC emissions against baseline conditions. Notwithstanding, Aera will comply with MBARD Rule 1000 (**RR-AIR-7**) and Rule 1003 (**RR-AIR-8**) to reduce the risks posed from TACs at the project area. In addition, MBARD reviewed Aera's facilities pursuant to the Air Toxic "Hot Spots" Act in 2021 and found it to be a low priority risk (MBARD, 2021). Therefore, impacts would be ***less than significant***.

d) The project may create odors during construction and operational activities from diesel exhaust. However, the nearest residential receptor is approximately one mile from proposed project construction, operation, and maintenance activities, and the emissions would be intermittent and dissipate rapidly from the source. Diesel fuel would be used in trucks and construction and workover equipment. Diesel fuel is considered an objectionable odor; however, as indicated project construction and workover activities are temporary and mobile in nature and would not be located adjacent to any single receptor for long periods of time. Further, California ultralow sulfur diesel fuel with a maximum sulfur content of 15 ppm by weight would be required to be used in all diesel-powered equipment, which would minimize emissions of sulfurous gases (SO2,

H2S, carbon disulfide, and carbonyl sulfide) and, thus, would minimize odors during project construction.

Operation of the project would include an odor source such as a production well. During project operation, potential sources of odor are fugitive emissions from the flanges, pressure relief devices, and other connections associated with the wellheads. As a result, there may be a potential increase in odors from the project area compared to the baseline. However, any emission of odorous compounds that may be associated with the project is not expected to be perceptible at the nearest sensitive receptor more than one mile from project activities given distance and dispersion. In addition, the operation of permitted equipment used for crude oil and natural gas production and processing is potentially subject to MBARD and CARB LDAR and tank emission control requirements. Accordingly, through compliance with applicable leak detection and repair requirements (**RR-AIR-9**) as well as New Source Performance Standards found in 40 CFR Part 60 (**RR-GHG-3**) in addition to the distance of project activities from any potential receptors of more than one mile, the potential for odors resulting from project operations to adversely affect a substantial number of people would be ***less than significant***.

3.4 Biological Resources

Issues	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒

Issues		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒
d)	Interfere substantially with the movement of any native 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?	☐	☒	☐	☐
e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
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?	☐	☐	☐	☒

3.4.1 ENVIRONMENTAL SETTING AND BASELINE

A biological technical report was prepared for the project (Stantec 2022) and is included as Appendix C to this IS. The query for Wunpost, CA and eight surrounding United States Geological Survey (USGS) 7.5-minute quadrangles (Hames Valley, San Ardo, Pancho Rico Valley, Slack Canyon, Valleton, San Miguel, Bradley, and Tierra Redonda Mountain) of the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB), California Native Plant Society (CNPS) Rare Plant Inventory List, CalFlora Observation Search, CDFW Special Animals List, as well as United States Fish and Wildlife Service's (USFWS) National Wetland Inventory GIS data, National Hydrography Dataset GIS data, and aerial imagery of the project area indicates that various special-status species have been recorded in the vicinity of the project area (Tables 3.4-1 and 3.4-2). There is no designated critical habitat in

the project area or vicinity. In addition, CDFW has advised that there is potentially suitable habitat within or adjacent to the existing well pad footprints for San Joaquin kit fox (Vulpes macrotis mutica), the state threatened tricolored blackbird (Agelaius tricolor), the state and federally endangered least Bell's vireo (Vireo bellii pusillus), and the state species of special concern burrowing owl (Athene cunicularia), American badger (Taxidea taxus), western spadefoot (Spea hammondii), and other nesting birds.

Table 3.4-1 Plant Species with Potential to Occur in the Proposed Project Area

Species	Listing Status/Rare Plant Rank	Habitat	Blooming Period	Probability of Occurrence
Calochortus Simulans La Panza mariposa-lily	-/1B.3	Perennial herb that occurs in chaparral, cismontane woodland, lower montaneconiferous forest, and valley grassland, often in granitic soils, sandy soils or sometimes serpentinite soils. Elevation range: 160–960 meters.	Apr-Jun	Low – The project area supports suitable annual grassland habitat, but in areas outside of the proposed area of disturbance. Not observed within the project area.
Castilleja densiflora var. obispoensis San Luis Obispo owl'sclove	-/1B.2	Annual herb (hemiparasitic) that occurs in meadows and seeps and valley and foothill grassland, sometimes in serpentinite soils. Elevation range: 10-430 meters.	Mar-May	Low – The project area supports suitable annual grassland habitat, but in areas outside of the proposed area of disturbance. Not observed within the project area.
Caulanthus lemmonii Lemmon's jewelflower	-/1B.2	Pinyon and juniper woodland, valley and foothill grassland; 80-1580 m.	Feb-May	Low – The project area supports suitable annual grassland habitat, but in areas outside of the proposed area of disturbance. Not observed within the project area.
Eriogonum temblorense Temblor buckwheat	-/1B.2	Valley and foothill grassland, clay and sandstone; 300-1000 m.	May-Sep	Low – The project area supports suitable annual grassland habitat, but in areas outside of the proposed area of disturbance. Not observed within the Project area.
Navarretia nigelliformis ssp. radians shining navarretia	-/1B.2	Annual herb that occurs in cismontane woodland, valley and foothill grassland, and vernal pools. Elevation range: 65–1,000 meters.	Apr- Jul	Low – The project area supports suitable annual grassland habitat, but in areas outside of the proposed area of disturbance. Not observed within the Project area.
Navarretia prostrata prostrate vernal pool navarretia	-/1B.2	Annual herb that occurs in coastal scrub, meadows and seeps, valley and foothill grassland, and vernal pools. Elevation range: 3–1,210 meters.	Apr- Jul	Low – The project area supports suitable annual grassland habitat, but in areas outside of the proposed area of disturbance. Not observed within the project area.
Nemacladus secundiflorus var. robbinsii Robbin's nemacladus	-/1B.2	Annual herb that occurs in openings in chaparral and valley and foothill grassland. Elevation range: 350–1,700 meters.	Apr- Jun	Low – The project area supports annual grassland habitat, but is below the known elevation range for the species.
Plagiobothrys Uncinatus Hooked popcornflower	-/1B.2	Annual herb that occurs in chaparral (sandy soils), cismontane woodland, and valley and foothill grasslands. Elevation range: 300-760 meters.	Apr- May	Low – The project area supports suitable annual grassland habitat, but in areas outside of the proposed area of disturbance. Not observed within the project area.

Stebbinsoseris decipiens Santa Cruz microseris	-/1B.2	Annual herb that occurs in broadleafed upland forest, closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, and valley and foothill grassland. Elevation range: 10-500 meters.	Apr- May	Low – The project area supports suitable annual grassland habitat, but in areas outside of the proposed area of disturbance. Not observed within the project area.

Listing Status/Rare Plant Rank Codes:

CCH = Consortium of California Herbaria
CNNDB = California Natural Diversity Database Info (CDFW)
FD = Federally delisted (USFWS)
FE = Federally listed Endangered (USFWS)
SE = State-listed Endangered (CDFW)

CNPS (California Native Plant Society) Codes, California Rare Plant Rank:
1B = Plants Rare, Threatened, or Endangered in California and Elsewhere
4 = Watch List: Limited Distribution
0.1 = Seriously Threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2 = Fairly Threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
0.3 = Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known).

Source: Stantec 2022

Table 3.4-2 Wildlife Species with Potential to Occur in the Proposed Project Area

Species	Federal Status/State Status/Other Status	Habitat	Probability of Occurrence
Amphibian			
Spea hammondii Western spadefoot	-/-/SSC	Occurs primarily in grassland habitats but can be found in valley-foothill hardwood woodlands; vernal pools are essential for breeding and egg-laying.	Low – Grassland habitat is present with the project area. Project area lacks vernal pools. Intermittent aquatic habitat could be present in the general area. None have been observed within the project area.
Reptile			
Masticophis flagellum ruddocki San Joaquin coachwhip	-/-/SSC	Open, dry habitats with little or no tree cover. Found in valley grassland and saltbush scrub in the San Joaquin Valley. Requires mammal burrows for refuge and oviposition sites.	Low – The project area supports suitable annual grassland habitat, but in areas outside of the proposed area of disturbance. Not observed within the project area.
Bird			
Agelaius tricolor Tricolored blackbird	-/ST/CMBPA	Cattail or tule marshes; forages in fields, farms. Breeds in large freshwater marshes, in dense stands of cattails or bulrushes. At all seasons (including when breeding), does most of its foraging in open habitats such as farm fields, pastures, cattle pens, large lawns.	Moderate – The project area supports suitable annual grassland habitat, but in areas outside of the proposed area of disturbance. Not observed within the project area.

Aquila chrysaetos Golden eagle	-/-/FP, BE&GEPA, CMBPA	Rolling foothills, mountain areas, sage-juniper flats, and desert. Nests in large trees in open areas or canyons.	Moderate (Foraging)- The project area may be utilized as foraging habitat for golden eagle. Nesting habitat is not present within or near the project area.
Athene cunicularia Burrowing owl	-/-/BLM, SSC, CMBPA	Found in a variety of habitats. Open dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation in areas where fossorial mammals are already present.	High – While no burrowing owls or their signs were observed within the project area, marginal habitat for burrowing owls occurs in grasslands adjacent to the well pads.
Buteo regalis ferruginous hawk	-/-/WL	Occurs in open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon and juniper habitats. Prefers elevated nest sites, such as boulders, low cliffs, haystacks, artificial structures, and tall trees.	Low – No suitable nesting habitat conditions are present in the project area for this species. Ferruginous hawks may forage in the hills adjacent to the project area but are not expected to be impacted by the proposed project.
Eremophila alpestris actia California horned lark	-/-/WL	Coastal regions, chiefly from Sonoma County to San Diego. Also occurs in main part of San Joaquin Valley and east to foothills. Short-grass prairie, "bald" hills, mountain meadows, open coastal plains, fallow grain fields, alkali flats.	High – While no California horned larks or their sign were observed within the project area, marginal habitat for California horned lark occurs in grasslands adjacent to the well pads.
Falco mexicanus Prairie falcon	-/-/WL	Dry, open habitats. Nests on cliffs. Forages far from breeding sites, even to marshlands and ocean shores.	Low – No suitable nesting habitat conditions are present in the project area for this species. Prairie falcons may forage in the hills adjacent to the project area but are not expected to be impacted by the proposed project.
Haliaeetus leucocephalus Bald eagle	-/-/FP, BE&GEPA, CMBPA	Requires large area with good food base, perching areas and nesting sites. Typically found nesting near rivers, lakes, and marshes. May be found foraging in dry areas such as farmland and urban habitat.	Low – No suitable nesting habitat conditions are present in the project area for this species. Prairie falcons may forage in the hills adjacent to the project area but are not expected to be impacted by the proposed project.
Lanius ludovicianus Loggerhead shrike	-/-/SSC	Broken woodlands, savannah, pinyonjuniper, Joshua tree, riparian areas, desert oases, and scrub and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	High — An adult and juvenile loggerhead shrike were observed in the vicinity of a toyon shrub located over 200 feet west of the well pads. It is possible that the toyon could have been a nesting location although no nest could be confirmed.
Vireo bellii pusillus least Bell's vireo	FE/SE/CMBPA	Below 2,000 feet elevation, riparian habitats with a dense shrub understory that is near water. The ideal habitat contains both canopy and shrub layers, and prefer nesting in willows but will also use shrubs, trees, and vines.	Moderate – The project area is near shrubland in proximity to the Salinas River and Sargent Creek, but in areas outside of the proposed area of disturbance. Not observed within the project area
Mammal			
Antrozous pallidus Pallid bat	-/-/SSC	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts need to be protected from high temperatures and are very sensitive to disturbance.	Moderate – Signs of bat roosts were observed in openings in the side of a hill located over 300 feet east of the well pads. These roosts are likely located far enough away from the proposed project activities to avoid any project-related impacts.

COrynorhinus townsendii Townsend's big-eared bat	-/-/SSC	Occurs throughout California in a wide variety of habitats. It is most common in mesic sites. It roosts in the open, hanging from walls and ceilings. Roosting sites are limited because it is extremely sensitive to human disturbance.	Moderate – Signs of bat roosts were observed in openings in the side of a hill located over 300 feet east of the well pads. These roosts are likely located far enough away from the proposed project activities to avoid any project-related impacts.
Lasiurus cinereus Hoary bat	-/-/SA	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	Moderate – Signs of bat roosts were observed in openings in the side of a hill located over 300 feet east of the well pads. These roosts are likely located far enough away from the proposed project activities to avoid any project-related impacts.
Perognathus inornatus psammophilus Salinas pocket mouse	-/-/SSC	Occurs in annual grassland and desert shrub communities in the Salinas Valley. It prefers fine-textured, sandy, friable soils, burrows for cover and nesting.	Moderate – Suitable habitat occurs in grasslands adjacent to the project area but no small mammal burrows were observed within the footprint of the proposed Project and this species is not expected to be impacted by the proposed project.
Taxidea taxus American badger	-/-/SSC	Found in many habitats. Most abundant in drier open stages of most shrubs, forest, and herbaceous habitats. Needs sufficient food and open areas. Preys on burrowing rodents and digs burrows.	Moderate – Suitable habitat is present within the project area but no potential dens were observed within the footprint of the proposed project or in adjacent grasslands.
Vulpes macrotis mutica San Joaquin kit fox	FE/ST/-	Chenopod scrub and valley and foothill grassland; annual grasslands or grassy open stages with scattered shrubby vegetation.	Moderate – Suitable habitat is present within the Project area but no potential dens were observed within the footprint of the proposed project or in adjacent grasslands.

Federal Status/State Status/Other Status Codes:
BE&GEPA = Bald Eagle and Golden Eagle Protection Act
CMBPA = California Migratory Bird Protection Act
CNDDB = California Natural Diversity Database Info (CDFW)
FE = Federally listed Endangered (USFWS)
FP = Fully protected under Fish and Game Code (CDFW)
FT = Federally listed Threatened (USFWS)
FCE = Federally Candidate Endangered (USFWS)
SA = Similarity of Appearance to a Threatened Taxon (USFWS)
SE = State-listed Endangered (CDFW)
ST = State-listed Threatened (CDFW
SCE = State Candidate Endangered (CDFW)
SSC= Species of Special Concern (CDFW)
WL = State Watch List (CDFW)
WBWG = Western Bat Working Group
H = Highest priority

Source: Stantec 2022

The project area and vicinity potentially support sensitive fauna and flora known to occur in the region. Stantec conducted a biological reconnaissance survey in July 2022 at the project area. During the survey, no sensitive species were observed except for an adult and juvenile loggerhead shrike over 200 feet west of the well pads, with the toyon serving as a potential nesting location although no nest was observed during the survey. No small mammal burrows or potential dens (San Joaquin kit fox, American badger) were observed during the survey. While only a reconnaissance survey was conducted, no special-status plant

species are expected to occur within the previously disturbed footprint of the two well pads where the project is proposed.

The project area consists of annual non-native grassland habitat along hillslopes, a lone toyon shrub, and disturbed lands. No naturally occurring rivers, streams or lakes were observed within the project boundaries. The nearest aquatic features are the Salinas River, which is located 1.7 miles west of the project area, and Sargent Creek, an intermittent stream that feeds into the Salinas River, which is located one mile north of the project area. Sargent Creek is defined by the National Hydrology Dataset (NHD) as an intermittent steam/river and by the National Wetland Inventory (NWI) as an intermittent riverine feature. An intermittent system may contain flowing water for only part of the year. When water is not flowing it may remain in isolated areas or dry up completely (ERMA, 2023). There are several other flowlines and unnamed intermittent and ephemeral water features surrounding the project area. However, no project activities are planned within any aquatic features. No disturbance or impact is anticipated to any of the above-mentioned aquatic features.

As indicated above, suitable habitat for various sensitive species is present within the project area. Certain wildlife species such as San Joaquin kit fox, American badger, burrowing owl, or other bird species may use the area for foraging or passing through the site. The area surrounding the oil field is suitable habitat for these species as they may occur in areas that are already disturbed and/or currently being used for human activities.

3.4.1 ENVIRONMENTAL ASSESSMENT

a) The project area is located within an active oil field on existing well pads surrounded by non-native grassland and disturbed land. A review of the USFWS Critical Habitat Report search determined that no critical habitat occurs within or near the project area. Under federal and state law, no incidental take of any species listed as threatened or endangered under the federal Endangered Species Act or California Endangered Species Act or rare or endangered in the California Native Plant Protection Act may occur unless the incidental take is authorized by applicable state and federal wildlife agencies in the form of a permit or other written authorization, an approved state or federal conservation plan, or in accordance with an approved regional plan such as a Habitat Conservation Plan (HCP) and/or Natural Community Conservation Plan (NCCP). As described above, a number of special status species have the potential to travel through or forage near or within the project area. Implementation of **MM-BIO-1 through MM-BIO-9** would ensure the potential for adverse effects are minimized. Therefore, potential impacts to special status species would be ***less than significant with mitigation***.

MM-BIO-1 Pre-Disturbance Survey: A pre-disturbance biological survey will be conducted by a Qualified Biologist within 30 days prior to construction activities. A Qualified Biologist is defined as a person with a combination of academic qualifications (minimum of 4 years of university or college education in biological sciences, zoology, wildlife biology, ecology, botany, or environmental science), professional field experience conducting biological surveys, and demonstrated knowledge and skills (i.e., field experience) related to the species and habitats present on the project area and the specific focused or protocol-level surveys conducted. The purpose of the pre-disturbance biological surveys is to confirm the potential presence and/or absence of any protected status species listed as threatened or endangered under the federal Endangered Species Act, threatened or endangered under the California Endangered Species Act, or designated as fully-protected in the California Fish and Game Code, and to confirm the presence and/or absence of any non-protected status sensitive species considered under California Environmental Quality Act.

The pre-disturbance biological survey will consist of walking belt transects to accomplish 100% coverage of the project area plus a 200-meter (656-foot) buffer. Additionally, a 1,640-foot buffer will be surveyed specifically for burrowing owl burrows, in accordance with Recommended Non-Disturbance Buffers for Occupied Burrowing Owl Nesting Sites Based on Project Activity Impact Level (CDFW, 2012). All direct and indirect observations of special-status biological resources will be recorded using a handheld GPS and on field forms. Habitat will be evaluated by the Qualified Biologist to determine the potential for biological resource monitoring and/or surveys for species that are seasonal or require focused surveys during specified periods (e.g., special-status plants, blunt-nosed leopard lizard).

The pre-disturbance biological survey report will include a map of the proposed project construction boundary, biological survey area, special-status species observations (when observed), areas of potential and/or occupied habitat (if any), areas identified for avoidance, and a list of all applicable mitigation measures that will be implemented for the respective project activity site.

MM-BIO-2 Monitoring: A qualified biological monitor shall be on-site during all project activities that have the potential to harm or impact special-status wildlife. Project activities that may require a biological monitor include but are not limited to vegetation removal and initial ground disturbance associated with well pad grading. When on-site, the biological monitor shall conduct a biological clearance survey of all work areas prior to the start of daily project activities. The purpose of the clearance survey is to identify any biological resources (nests, dens, burrows) within the work areas that may have occurred since the last workday, any wildlife species within the work areas, and to inspect any exclusion areas and make sure they remain intact. In addition, the biological monitor shall monitor all vegetation removal and ground disturbance

activities. Once activities that have the potential to harm or impact wildlife have been completed, daily biological monitoring will not be required. This determination will be left up to the discretion of the Qualified Biologist. The Qualified Biologist may conduct periodic inspections of project activities to ensure measures are being implemented and no sensitive wildlife have moved into the area. Depending on the pre-disturbance biological survey, activities that will likely not require a biological monitor include drilling operations and project operations. If at any time during project activities any special-status wildlife species are observed within the project area, work around the animal's immediate area shall be stopped or work shall be redirected to an area within the project area that would not impact these species until the animal has left the area of its own volition. Listed animal species will not be handled or relocated and will be allowed to leave the project area unimpeded. Work would resume once the animal is clear of the work area. In the unlikely event a special-status species is injured or killed by project-related activities, the biological monitor would stop work and notify Aera and CalGEM and consult with the appropriate agencies to resolve the impact prior to re-starting work in the area. The biological monitor will keep notes of all species observed, compliance concerns if any, and work activities conducted in a daily monitoring log.

MM-BIO-3 Bird Nest Buffers: Active bird nest(s) will be avoided by establishing a minimum 300-foot non-disturbance buffer for passerine species, a minimum 500-foot non-disturbance buffer for non-listed raptor nest(s), or a minimum 0.5-mile non-disturbance buffer around any federal or state- listed raptor nest(s) until the breeding season has ended. Non-disturbance buffers can be removed when a Qualified Biologist has determined that the birds have fledged, are no longer reliant on the nest or parental care for survival and adult birds are no longer occupying the nest, or the nest is no longer active (e.g., failed). Reduced non-disturbance buffers may be implemented if a Qualified Biologist concludes that work within the buffer area will not be likely to cause disturbance to or abandonment of the nest (e.g., when the disturbance area is concealed from a nest site by topography, when work activities will have a limited duration within the buffer area, or when the species has been known to tolerate higher levels of disturbance). If reduced non-disturbance buffers are implemented, a Qualified Biologist will monitor the active nest(s) before and during construction to establish a baseline for nest behavior and determine whether construction activities are adversely affecting the nest. If a reduced non-disturbance buffer is implemented, full-time biological monitoring of the nest will occur during construction activities. The pre-disturbance monitoring of the nest site will occur on at least two occasions of at least one hour each during anticipated work hours prior to construction to establish a behavioral baseline. If behavioral changes are observed, the work causing that change will cease within the buffer area until the nest has fledged or is determined by the Qualified Biologist

to no longer be active. The Qualified Biologist shall have the authority to halt or redirect construction activities to protect nesting birds from project activities. Any reduction of buffer areas for state or federal listed species during the nesting season must be authorized by CDFW and/or USFWS.

MM-BIO-4 WEAP: A Worker Environmental Awareness Program (WEAP) will be presented to all personnel that may access the project area, prior to beginning work on the project area. The WEAP training will be given by trained personnel (e.g., Qualified Biologist or assigned Company Environmental Specialists). WEAP trainings will cover an overview of the laws and regulations governing the protection of biological resources; a description of protected (i.e., FESA/CESA threatened, endangered, candidate, and other special status) species known to occur or with the potential to occur in the project area. The training would include a discussion of the sensitive and protected species and their biology and general behavior, distribution and habitat needs, sensitivity to human activities, and project-specific protective measures. It will also discuss species status and legal protections, define what is habitat and disturbance, and present biological resource protection measures. Materials will be provided to assist workers in recognizing protected and sensitive species. The training will include avoidance and minimization measures to protect biological resources, the identification of environmentally sensitive areas and avoidance buffers, and how to report biological resources if observed on site. The training of personnel would be documented using sign-in sheets.

MM-BIO-5 San Joaquin Kit Fox: If the pre-disturbance biological survey identifies the presence of any Potential, Atypical, Known or Natal San Joaquin kit fox (SJKF) dens, the following measures will be implemented and documented in the pre-disturbance biological survey report.

1. Potential kit fox dens will be clearly identified on project maps, marked in the field, and a 50-foot no work buffer will be demarcated using stakes and flagging or similar materials to prevent inadvertent damage to the potential den. Alternatively, if a potential den cannot feasibly be avoided at such distance, the den may be monitored and blocked or excavated in accordance with the Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox prior to or during Ground Disturbance (USFWS, 2011). All potential dens that will be destroyed by a project activity or ground disturbance will be fully excavated after monitoring conducted by a Qualified Biologist shows that it is not occupied by a listed or otherwise protected species.

2. If kit fox activity or sign is detected at any den including atypical dens (e.g., pipes, culverts), the den location will be identified as a "known" kit fox den in accordance with USFWS guidelines (USFWS, 2011). A minimum 100-foot no work buffer from any disturbance area will be maintained for known dens.

3. During pupping season (January 1 through August 31 or until pups are no longer dependent on adults), a minimum 500-foot no work buffer (distance at which construction noise attenuates to approximately 60 dBA) from any disturbance area will be maintained from occupied natal dens.

4. No excavation (or other project-related destruction) of a known or natal den will occur without prior written guidance from USFWS.

5. All pipes (greater than 3.5 inches in diameter) used during project activities will be capped. Stored pipes greater than 3.5 inches that cannot be visually inspected to verify that no wildlife is present will need to be monitored by a Qualified Biologist prior to use or movement. All trenches and excavations would be covered or ramped (1:1 slope) prior to prevent wildlife entrapment.

6. If take (as defined in FESA and/or CESA) of SJKF cannot be avoided, Aera shall consult with USFWS and/or CDFW to obtain necessary authorization and shall implement all associated conditions, including any required take avoidance or minimization measures, of such authorization. If den exclusion or destruction is permitted under FESA, a Qualified Biologist will supervise any such activity.

MM-BIO-6 Burrowing Owl: If the pre-disturbance biological survey identifies the presence of an occupied burrowing owl burrow, the following measures would be implemented and included in the pre-disturbance biological survey report:

1. Occupied burrowing owl burrows will not be disturbed during the burrowing owl nesting season (February 1 through August 31). The non-disturbance buffer distances shown in Table 4 below, in accordance with CDFW (2012), will be maintained between all disturbance areas and burrowing owl nesting sites. Well drilling is considered high disturbance.

Table 3.4-3. Recommended Non-Disturbance Buffers for Occupied Burrowing Owl Nesting Sites Based on Project Activity Impact Level (CDFW, 2012)

Time of Year	Level of Disturbance		
	Low	**Medium**	**High**
April 1 – Aug 15	656 feet	1,640 feet	1,640 feet
Aug 16 – Oct 15	656 feet	656 feet	1,640 feet
Oct 16 – Mar 31	164 feet	328 feet	1,640 feet

2. If occupied burrow avoidance is infeasible during the non-breeding season (between September 1 and January 31), a Qualified Biologist shall implement a passive relocation project in accordance with the CDFW (2012) Staff Report on Burrowing Owl Mitigation, which may include installing one-way doors in burrow entrances for 48 hours to ensure the owl(s) have left the burrow, daily monitoring during the passive relocation period, and subsequently collapsing evicted burrows, once unoccupied, to prevent re-occupation. Prior to passive relocation or exclusion efforts, a burrowing owl management plan will be prepared and approved by CDFW. Destruction of burrows will occur only pursuant to a CDFW-approved burrowing owl management plan; burrow excavation will be conducted by hand whenever possible.

3. As an alternative to passive relocation, occupied burrows that are identified within 500 feet but outside the area of ground disturbance may be buffered with hay bales, fencing (e.g., sheltering in place), or as directed by the Qualified Biologist in coordination with CDFW, to avoid disturbance of burrows.

MM-BIO-7 American Badger: If the pre-disturbance biological survey identifies the presence of an occupied American Badger burrow, the following measures would be implemented:

1. Occupied American Badger dens (non-maternity dens) will be avoided by establishing a minimum 50-foot non-disturbance buffer.

2. Occupied maternity dens will be avoided by establishing a minimum 200-foot non-disturbance buffer during the pup-rearing season (February 15 through July 1).

3. A Qualified Biologist will establish (e.g., flag) non-disturbance buffer areas, as identified above, and will periodically monitor ground-disturbing activities to ensure no work is encroaching on established buffer areas.

4. Destruction of a maternity den burrow shall only proceed after the maternity den is no longer active and no badgers are present within the burrow.

5. If take (as defined in CESA) of SJKF cannot be avoided, Aera shall consult with CDFW to obtain necessary authorization and shall implement all associated conditions, including any required take avoidance or minimization measures, of such authorization. If den exclusion or destruction is permitted under CESA, a Qualified Biologist will supervise any such activity.

MM-BIO-8 Reptiles: If the pre-disturbance biological survey identifies the presence of San Joaquin coachwhip or any other reptile species of special concern within the project area, the following measures would be implemented:

1. If any San Joaquin coachwhips or any other reptile species of special concern are observed during construction, the identified special-status reptiles will be allowed to move out of the work area on their own or will be removed from the work area and released in adjacent suitable habitat by a Qualified Biologist. The Qualified Biologist will have all appropriate permits in place prior to handling any special-status reptiles or any other wildlife.

2. No monofilament plastic will be used, such as for erosion control.

3. All construction equipment and construction personnel vehicles will be checked prior to moving them, to ensure that no special-status reptile is under equipment/vehicles. If any individuals are detected beneath equipment or vehicles, the equipment or vehicles will be left in place until the individual(s) moves out of harm's way on its own accord, as determined by a Qualified Biologist.

MM-BIO-9 Best Management Practices: The following best management practices (BMP) will be implemented during all construction, operations, and maintenance activities to avoid and minimize potential significant adverse impacts on biological resources:

1. Work area boundaries shall be delineated with flagging, temporary fencing, or other markers deemed warranted by a Qualified Biologist to minimize the potential for off-site impacts associated with potential vehicle straying. The work area shall be restricted to the two previously disturbed well pads and shall not encroach into adjacent grassland.

2. All vehicles will observe a daytime 20 mile-per-hour speed limit in all areas of disturbance and on unpaved roads unless otherwise posted. Off-road traffic outside designated access routes will be prohibited unless specifically authorized by a Qualified Biologist. Speed limit signs will be posted at visible locations at the point of site entry and at regular intervals on all unpaved access roads. A reduced speed limit of 10 miles-per-hour will be posted and observed within 0.25-mile of any reported special-status species observation. A 10 mile-per-hour speed limit will be observed at night.

3. All disturbance activities, except emergency situations or drilling that may require continuous operations, will occur only during daylight hours. Continuous 24-hour drilling activities will use directed lighting, shielding methods, or reduced lumen intensity. All new lighting fixtures for safety and security at facilities would be shielded, oriented downward while avoiding direct illumination toward adjacent grasslands, and on-demand lighting and/or with timers, to avoid unnecessary visual disturbance to wildlife.

4. All food related trash items and microtrash, such as wrappers, cans, bottles, bottle tops, and food scraps will be disposed of in closed containers and

routinely removed from the project area, at intervals of no less than once per week.

5. The construction contractor shall have hazardous materials spill and containment kits kept on-site at all times to be immediately deployed if necessary. All releases of potentially hazardous materials will be contained as close to the source site as possible. The released materials will be cleaned up by the contractor immediately and disposed of properly. If a release of potentially hazardous materials occurs within special-status species habitat, a Qualified Biologist will be contacted immediately, and a Qualified Biologist and/or biological monitor will monitor cleanup and containment. The appropriate regulatory agencies will be notified of the release of potentially hazardous materials and the remedial action taken by the contractor as soon as possible, but not later than 24 hours after the release occurs or is discovered. Within 30 days of completing cleanup activities, a compliance report will be submitted by the Qualified Biologist/biological monitor to the involved regulatory agencies.

6. Firearms and pets shall be prohibited from the project area.

7. Excavations, spoils piles, unpaved access roadways, and parking and staging areas will be subject to dust control.

8. Herbicides application will be in accordance with existing laws and manufacturers' instructions (i.e., pesticide/herbicide labels). All herbicide chemicals used must be registered for use in the U.S. and California and must have a label certifying that the Federal Environmental Protection Agency (EPA) and the California Department of Pesticide Regulation (DPR) have approved the herbicide for use. Herbicides will not be sprayed within 50-feet of known occurrences of any other special-status plant occurrence or federal land. No rodenticides will be used on any project.

9. All open trenches, excavations, and/or holes more than 2 feet deep will be backfilled or covered at the end of each workday with plywood or similar materials to prevent wildlife entrapment. If an excavation or hole is too large to cover, escape ramps will be installed at an incline ratio of no greater than 2:1 at least every 300 feet. All trenches and excavations will be inspected for the presence of wildlife each day prior to the start of work. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. Any animals discovered shall be allowed to escape before construction activities are allowed to resume or removed from the trench or hole by a Qualified Biologist holding the appropriate permits (if required).

10. All straight construction pipes, culverts, or similar structures with a diameter of 3.5 inches or greater that are stored at a construction site overnight will be thoroughly inspected for wildlife before the pipe is subsequently buried,

capped, or otherwise used or moved in any way. All bent pipe with a diameter of 3.5 inches or greater that cannot be visually inspected for wildlife with 100 percent certainty will be left in place and monitored by a Qualified Biologist using wildlife cameras and/or tracking material prior to being removed, capped, moved, or buried. If any wildlife is discovered inside a pipe, that section of pipe is not to be moved until the animal vacates the pipe on its own accord.

11. To enable SJKF and other wildlife to pass through the project area, any new perimeter fencing installed around project work areas, with the exception of where fencing is required to exclude wildlife from known hazards, will include a 4-to-6-inch opening between the fence and the ground or the fence will be raised 4 to 6 inches above the ground. The bottom of the fence fabric will be knuckled (wrapped back to form a smooth edge), if necessary, to protect wildlife from injury when passing underneath.

12. All vertical tubes used in project construction and chain link fencing poles will be capped to avoid entrapment and death of special-status wildlife and birds.

13. Discovery of state or federally listed species that are injured or dead will be reported immediately via telephone and within 24 hours in writing to CDFW and USFWS as relevant. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information, such as the cause of injury or death (if known).

14. All activity will use previously disturbed areas to the maximum extent feasible to minimize the amount of new disturbance in areas with existing natural lands.

15. Vehicle, equipment, and material storage will be limited to previously disturbed areas or predefined storage/laydown areas that are incorporated into work site limits. All concrete and asphalt debris will be removed from the project area to either a designated concrete or asphalt storage facility, or off site for recycling or proper disposal on completion of construction.

16. No vehicles or construction equipment will be parked within a water of the state, including any dry wash or drainage, nor shall vehicles or construction equipment cross, or travel within a water of the state, including any wash or drainage, where and when water is flowing. No materials will be stored within a water of the state.

17. All construction equipment and construction personnel vehicles will be checked underneath prior to moving them, to ensure that no wildlife is under equipment/vehicles. If any individuals are detected beneath equipment or vehicles, the equipment or vehicles will be left in place until the wildlife moves out of harm's way on its own accord, as determined by a Qualified Biologist.

18. All tracked vehicles and other construction equipment entering the project area from outside of Monterey and/or San Luis Obispo County will be washed or maintained to be weed-free.

19. All washing of trucks, paint, equipment, or similar activities including concrete washout will occur in designated areas/facilities where runoff is fully contained for collection prior to off-site disposal. Wash water may not be discharged from the project area, must be stored in a manner that excludes sensitive wildlife species, and located at least 100 feet from any water of the State.

b) The project area contains disturbed habitat with non-native grassland species. The review of the National Wetlands Inventory did not identify any wetlands or other aquatic features at or in the vicinity of the project area. No project activities are planned within any aquatic features. The major hydrological feature in the region is the Salinas River, which is located 1.7 miles west of the project area. Sargent Creek, an intermittent stream that feeds into the Salinas River, is located one mile north of the project area. No drainage or stream features that would qualify as Waters of the State or Waters of the United States were identified. Therefore, there would be ***no impacts*** to sensitive natural communities and riparian areas.

c) The biological survey conducted in 2023 confirmed that there are no wetlands present within or near the project area. Therefore, there would be ***no impact*** to wetlands.

d) Wildlife movement corridors are defined on both a regional and on a local scale. Regionally and on a local basis, the project does not fall within a known movement corridor. However, migratory birds may use the project area and vicinity for breeding, nesting, and foraging, or as transient rest sites during migration flights. Implementation of **MM-BIO-1, MM-BIO-2, MM-BIO-3, MM-BIO-4, and MM-BIO-9** discussed above would minimize the potential for impacts to migratory bird species due to construction and operational activities. Therefore, impact on wildlife movement would be ***less than significant with mitigation***.

e) Chapter 16.60 of the Monterey County Zoning Ordinance requires preservation of oak and other protected trees. Based on the biological reconnaissance survey, no oak trees or other tree species will be removed from the project area during project implementation. Therefore, the project would not conflict with any local ordinances or policies protecting biological resources, such as a tree preservation policy or ordinance, and there would be ***no impact***.

f) The project area is not located within the boundaries of an HCP. The project would not conflict with an adopted HCP, NCCP, or other approved local, regional, or state HCP, and there would be ***no impact***.

3.5 Cultural Resources

Issues	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES – Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

3.5.1 ENVIRONMENTAL SETTING AND BASELINE

A Cultural Resources Inventory report was prepared by Applied EarthWorks, Inc. (AE) for the San Ardo Oil Field Modernization Project in February 2011 and is included as Appendix D to this IS. AE performed an archaeological and historic property record search of the San Ardo Oil Field from the Northwest Information Center of the California Historical Resources Information System (NIC-CHRIS) on December 2, 2010. The records search conducted as part of the survey identified that portions of the San Ardo Oil Field have been subject to 14 previous resource studies which did not reveal cultural resources within oil field boundaries. The closest cultural resource site identified within the oil field is a lithic scatter of locally occurring chert located approximately 1.3 miles away from the project area. The next closest cultural resource cited near the proposed project are lithic debris at Sargent Canyon, approximately six miles from the project area. In addition, there are no historical or built environment resources identified within a ½-mile radius of the project area.

Between December 6 and 17, 2010, AE conducted a pedestrian field survey of the San Ardo Oil Field, resulting in the identification of one historic-period ranching feature approximately 0.6 miles from the project area. No other cultural resources were observed during the pedestrian survey (Applied EarthWorks 2011; Appendix D).

3.5.2 ENVIRONMENTAL ASSESSMENT

a) Cultural resource surveys conducted within the project area (Appendix D) concluded that there were no identified cultural resources within the project area boundaries. Therefore, the project would have ***no impact*** on historical resources.

b) No archaeological resources were identified within the project area during the records search or pedestrian survey (Appendix D). Therefore, impacts to archaeological resources are expected to be less than significant. However, in the unlikely event of an inadvertent discovery, implementation of **MM-CUL-1/TCR-1** and **MM-CUL-2/TCR-2** would ensure impacts are minimized to the extent feasible**.** Therefore, impacts to archaeological resources would be ***less than significant with mitigation.***

MM-CUL-1/TCR-1 Discovery of Previously Unknown Cultural or Tribal Cultural Resources: In the event any potential tribal cultural resources, archaeological resources/materials, other cultural resources, or articulated or disarticulated human remains are discovered during ground disturbance or construction activities, Aera shall cease any ground disturbing and construction activities within 50 feet of the find, or an agreed upon distance based on the project area and nature of the find. Work stoppage shall remain in place until the qualified archaeologist, or other designated on-site specialist, determines the nature of the discovery, and evaluates the significance of the discovery and recommends appropriate treatment measures. Per CEQA Guidelines section 15126.4(b)(3), project redesign and preservation in place shall be the preferred means to avoid impacts to significant historical resources. If it is demonstrated that resources cannot be avoided, the qualified archaeologist shall develop additional treatment measures in consultation with CalGEM, which may include data recovery or other appropriate measures. CalGEM will consult with appropriate Native American representatives in determining appropriate treatment for unearthed cultural resources if the resources are prehistoric or Native American in nature. Tribal cultural resources shall not be photographed nor be subjected to any studies beyond such inspection as may be necessary to determine the nature and significance of the discovery. If the discovery is confirmed as potentially significant or a tribal cultural resource, an Environmentally Sensitive Area (ESA) will be established using fencing or other suitable material to protect the discovery during subsequent investigation. No ground-disturbing activities will be permitted within the ESA until the area has been cleared for construction. The exact location of the resources within the ESA must be kept confidential and measures shall be taken to secure the area from site disturbance and potential vandalism. If after consultation it is deemed appropriate, archaeological materials recovered during any investigation shall be curated at an accredited curation facility. The qualified archaeologist shall

prepare a report documenting evaluation and/or additional treatment of the resource. A copy of the report shall be provided to CalGEM and the Northwest Information Center.

MM-CUL-2/TCR-2 Cultural and Tribal Cultural Resources Monitoring: In addition to the procedures required by **MM-CUL-1/TCR-1** and **MM-CUL-3/TCR-3**, at the discretion of CalGEM and the designated representatives from any consulting Tribe(s), Aera shall provide cultural and tribal cultural resources monitoring during all construction activities for the project. Monitors may include cultural or tribal resource specialists and representatives from area Native American Tribes. Prior to engaging in monitoring, monitors must be provided the training required by **MM-HAZ-1**. Monitors will also participate in daily project tailgate safety meetings. The monitors shall have the authority to temporarily halt or redirect construction in the event that potentially significant cultural resources or tribal cultural resources are discovered during project-related activities. The work stoppage or redirection shall occur to an extent sufficient to ensure that the resource is protected from further impacts. Aera shall provide a minimum two-week notice to CalGEM and the designated representatives from the consulting Tribe(s) prior to all activities requiring monitoring and shall provide safe and reasonable access to the project area. The monitor(s) shall work in collaboration with Aera.

c) No human remains have been identified within the project area; therefore, no impacts are anticipated to occur. However, in the unlikely event of an inadvertent discovery, implementation of the cultural resources' procedures described in **MM-CUL-3/TCR-3** would ensure that impacts would be ***less than significant with mitigation***.

MM-CUL-3/TCR-3 Unanticipated Discovery of Human Remains: If human remains or associated grave goods (e.g., non-human funerary objects, artifacts, animals, ash or other remnants of burning ceremonies) are uncovered during project construction, Aera shall immediately halt all ground disturbing work within 50-feet of the discovery or other agreed upon distance based on the project area and nature of the find; treat the remains with respect and dignity; contact the Monterey County Coroner within 24 hours to evaluate the remains; and follow the procedures and protocols set forth in CEQA Guidelines Section 15064.5(e)(1), California Health and Safety Code Section 7050.5 and California Public Resources Code Section 5097.8. The Monterey County Public Works, Facilities and Parks Department shall be notified concurrently. If the county coroner determines the remains to be of Native American origin, the county coroner shall contact the Native American Heritage Commission within 24 hours of this determination, in accordance with Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code 5097.98 (as amended by Assembly Bill (AB) 2641). The Native American Heritage Commission shall

designate a most likely descendant for the remains per Public Resources Code 5097.98. Per Public Resources Code 5097.98, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred with the most likely descendant regarding their recommendations, if applicable, taking into account the possibility of multiple humans remains. If the remains are determined to be neither of forensic value to the coroner, nor of Native American origin, provisions of the California Health and Safety Code (7100 et. seq.) directing identification of the next-of-kin will apply.

Unless otherwise required by law, the site of any reburial of Native American human remains shall not be disclosed and will not be governed by public disclosure requirements of the California Public Records Act (Cal. Govt. Code § 6250 et seq.).

3.6 Energy

Issues	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. ENERGY – Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☒	☐	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

3.6.1 ENVIRONMENTAL SETTING AND BASELINE

Energy capacity, or electrical power, is generally measured in watts while energy use is measured in watt-hours. For example, if a light bulb has a capacity rating of 100 watts, the energy required to keep the bulb on for 1 hour would be 100 watt-hours. If ten 100-watt bulbs were on for 1 hour, the energy required would be 1,000 watt-hours or 1 kilowatt-hour (kWh). On a utility scale, a

generator's capacity is typically rated in megawatts, which is one million watts, while energy usage is measured in megawatt-hours (MWh) or gigawatt-hours (GWh), which is one billion watt-hours.

Power for the construction phase of the proposed project would be generated using Aera's existing San Ardo electrical infrastructure. The anticipated equipment, vehicles, and materials that will be required for the construction of the project are detailed in Section 2.0, Project Description. During project construction and operation, the following energy resources would be consumed: electricity and fossil fuels. Project construction activities would involve the use of various construction equipment and machinery that would use fossil fuels.

In 2002, the Legislature passed Senate Bill 1389, which required the California Energy Commission to develop an integrated energy plan every two years for electricity, natural gas, and transportation fuels, for the California Energy Policy Report. The California Energy Commission recently adopted the 2017 Integrated Energy Policy Report. The 2017 Integrated Energy Policy Report provides the results of the California Energy Commission's assessments of a variety of energy issues facing California. Many of these issues will require action if the State is to meet its climate, energy, air quality, and other environmental goals while maintaining energy reliability, and controlling costs. The 2017 Integrated Energy Policy Report covers a broad range of topics, including implementation of Senate Bill 350, integrated resource planning, distributed energy resources, transportation electrification, solutions to increase resiliency in the electricity sector, energy efficiency, barriers faced by disadvantaged communities, demand response, transmission and landscape-scale planning, the California Energy Demand Preliminary Forecast, the preliminary transportation energy demand forecast, renewable gas (in response to Senate Bill 1383), natural gas outlook, and climate adaptation and resiliency.

The County of Monterey relies on the state integrated energy plan and does not have its own local plan to address renewable energy or energy efficiency.

a) Project construction would occur over three general phases, with the drilling phase utilizing the most construction equipment and would consume gasoline and diesel fuel. In addition to direct construction energy consumption, indirect energy use would be required to make the materials and components used in construction. This includes energy used for extraction of raw materials, manufacturing, and transportation associated with manufacturing.

Construction and operation of the project will not cause a significant increase in fossil fuel consumption or use of electricity within Monterey County. As such, fuel

energy consumed during project construction would be temporary and would not represent a substantial demand on energy resources.

In addition, energy conservation would occur during project construction through implementation of **RR-EN-1**, compliance with the CARB anti-idling and emissions regulations specified in Title 13, Section 2485, of the C.C.R, which require that equipment not used for more than five minutes be turned off. Compliance with these regulations would result in less fuel combustion and energy consumption and thus minimize the project's construction-related energy use. Project construction equipment would also be required to comply with EPA and CARB engine emission standards. (See **RR-GHG-3** and **RR-GHG-4**.) These emission standards require highly efficient combustion systems to maximize fuel efficiency and reduce unnecessary fuel consumption.

In addition, the project includes several energy and fuel-efficient design features (**DF-EN-1**) that would help minimize inefficient or wasteful use of energy and increase conservation during construction. For example, the proposed re-

grading plan is designed to balance all earthwork on site, which would avoid truck trips that would have been required to haul-in fill materials to the site and

haul-off of materials to be exported off-site. This would reduce fuel use, while also reducing temporary increases in noise and exhaust emissions. The re-grading plan and on-site construction equipment would also minimize impacts to the surrounding transportation network that would result from truck traffic associated with soil import/export and mobilization/demobilization. Further, with adherence to **RR-EN-2**, idling times on all diesel-fueled off-road vehicles over 25 horsepower will be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes, with fleet operators being required to develop a written policy as required by C.C.R., Title 23, Section 2449 ("CARB Off-Road Diesel Regulations").

Implementation of **DF-EN-1**, **MM-EN-1**, and **RR-EN-1**, **RR-EN-2,** would further reduce fuel consumption and energy use.

Following construction, the potential project operations energy use would consist of electricity at the wells and production facilities as well as fuel use associated with scheduled workovers involving use of one workover rig, one medium-duty truck, and six worker vehicles over two 12-hour workdays. Electricity required for operation of the proposed project is minimal at annual electricity usage of 175 MWh per well. Therefore, normal operations would not have any impact on the total electricity consumption in Monterey County. As described above for construction equipment, compliance with the CARB anti-idling and emissions regulations that require that equipment not used for more than five minutes be turned off would result in energy conservation as would

compliance with EPA and CARB engine emission standards that require highly efficient combustion systems to maximize fuel efficiency and reduce unnecessary fuel consumption.

With compliance with applicable regulations and implementation of **DF-EN-1**, **RR-EN-1**, **RR-EN-2**, and **MM-EN-1**, the project would not result in wasteful, inefficient, or unnecessary consumption of energy resources. Therefore, the project would result in ***less than significant impacts with mitigation***.

MM-EN-1 Energy Conservation:

1. All construction equipment shall be maintained and properly tuned in accordance with the manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

2. Portable equipment shall be powered by electricity if available. If electricity is not available, propane or natural gas shall be used if feasible. Diesel engines

shall only be used if electricity is not available, and it is not feasible to use propane or natural gas.

b) The project would occur within an active oil field and would not conflict with or obstruct any state or local renewable energy or energy efficiency plans. State utilities are on target to achieve a net zero energy system by 2040, consistent with Assembly Bill (AB) 32, Senate Bill (SB) 32, and AB 1279. The project would not conflict or obstruct utilities from achieving these targets. Therefore, impacts are considered ***less than significant***.

3.7 Geology and Soils

Issues	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. GEOLOGY AND SOILS – Would the project:				
a) Directly or indirectly cause 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 a known fault?	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on strata 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?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building code (1997), creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☒	☐

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

3.7.1 ENVIRONMENTAL SETTING AND BASELINE

The project area is situated within the San Ardo Oil Field, located in Monterey County, California.

This valley region is characterized by a rolling hill landscape of the inner coast ranges at an elevation of approximately 900 feet and approximately 35 miles inland and east of the Pacific Ocean. Average summer high temperatures are approximately 90 °F, average winter low temperatures are approximately 62°F, and annual precipitation averages approximately 16.5 inches. The Salinas River is the region's major hydrological feature. The productive units of the San Ardo Oil Field includes the Aurignac Sands, which are a portion of the Monterey Formation and contain rich deposits of heavy crude oil. The geological formations in this area primarily consist of sandstone. The anticline structure is significant for trapping oil and gas deposits.

The National Resources Conservation Service (NRCS, 2023) Web Soil Survey classifies the project area as being composed of Nacimiento-Los Osos complex, 30 to 50 percent slopes, Major Land Resource Area (MLRA) 15. Table 3.7-1 summarizes the key soil characteristics of the project area as classified by the NRCS.

Table 3.7-1 Key Soil Characteristics of the Project area

Attribute	Description	Attribute	Description
Soil Classification	Nacimiento-Los Osos complex (30 to 50 percent slopes)	Zone of Water Saturation within 60 Inches	None
Location	Hillslopes	Organic Matter Content in Surface Horizon	About 3 percent
Parent Material	Fine-loamy residuum weathered from sedimentary rock	Ecological Site	R015XD024CA - FINE LOAMY, R015XE020CA - Fine Loamy 9-13
Depth to Root Restrictive Layer	31 inches to parlithic bedrock	Non-Irrigated Land Capability Classification	6e
Natural Drainage Class	Well drained	Irrigated Land Capability Classification	6e
Water Movement in Most Restrictive Layer	Moderately low to moderately high	Hydric Criteria	Does not meet

Available Water to 60 Inches	Low	Calcium Carbonate, Maximum Content	25 percent
Shrink-Swell Potential	Moderate	Maximum Salinity	Nonsaline to very slightly saline
Flooding	Not flooded	Reference	NRCS, 2023

State law to restrict development near active faults in California was established under the Alquist-Priolo Earthquake Fault Zoning Act (CDOC, 2022). The project area is not within a fault zone; the San Andreas fault is located approximately 14 miles northeast of the project area and the active Rinconada Fault is approximately 7.4 miles southwest, which is the nearest fault zone to the project area (CDOC, 2022). The proposed project is not in a subsidence zone (USGS, 2025) and is not located in an area with high landslide potential or a liquefaction zone (CDOC, 2022).

Every geologic unit can be assigned a Potential Fossil Yield Classification (PFYC) class based on the probability and abundance of known vertebrate fossils and scientifically significant invertebrate and plant fossils. The PFYC scheme ranges from very low (PFYC 1) to very high (PFYC 5) depending on the potential fossil yield (BLM, 2016). The project area is underlain by Pliocene marine and tertiary sedimentary rock, which is assigned a PFYC Class 3.

3.7.2 ENVIRONMENTAL ASSESSMENT

a, i-ii) The project area is not located within an Alquist-Priolo Earthquake fault zone (CDOC, 2022a). Fault rupture is the surface displacement that occurs when movement on a fault deep within the earth breaks through to the surface. Fault rupture and displacement almost always follows preexisting faults, which are zones of weakness, however not all earthquakes result in surface rupture (i.e., earthquakes that occur on blind thrusts do not result in surface fault rupture). Rupture may occur suddenly during an earthquake or slowly in the form of fault creep. In addition to damage caused by ground shaking from an earthquake, fault rupture is damaging to buildings and other structures due to the differential displacement and deformation of the ground surface that occurs from the fault offset, leading to damage or collapse of structures across this zone.

While the closest faults to the project area are the active Rinconada Fault and San Andreas Fault, no known active or potentially active faults are mapped crossing or immediately adjacent to any project components. Therefore, there is little to no potential for primary fault rupture to impact the project area.

The intensity of the seismic shaking, or strong ground motion, during an earthquake is dependent on the distance between the project area and the epicenter of the earthquake, the magnitude of the earthquake, and the

geologic conditions underlying and surrounding the project area. Earthquakes occurring on faults closest to the project area would most likely generate the largest ground motion. The intensity of earthquake induced ground motions can be described using peak site accelerations, represented as a fraction of the acceleration of gravity (g). The USGS National Seismic Hazards (NSH) Maps were used to estimate approximate peak ground accelerations (PGAs) in the proposed project area (USGS, 2014). The NSH Maps depict peak ground accelerations with a 2 percent probability of exceedance in 50 years, which corresponds to a return interval of 2,475 years and for a maximum considered earthquake. The estimated approximate peak ground acceleration from large earthquakes for the project area is approximately 0.5650g, which corresponds to moderate to strong ground shaking.

Seismic ground-shaking could result in structural damage to project infrastructure and facilities. However, the proposed project does not involve any infrastructure or facilities that would include human occupancy. The risk of injury during the proposed project associated with ground-shaking, landslides, or liquefaction are low. It is possible that ground-shaking could substantially damage project-related infrastructure. The project would be designed and constructed according to engineering specifications that account for site-specific geotechnical conditions to resist spreading, subsidence, liquefaction, and collapse, and conform with the most recently adopted building codes (**RR-GEO-1**) and Aera would operate the proposed wells in accordance with a Spill Prevention Control and Countermeasures (SPCC) Plan in accordance with CalGEM's requirements found in C.C.R., Title 14, Section 1722.9 and the Oil Pollution Prevention requirements of the Clean Water Act (40 CFR Part 112). (**RR-HAZ-2**.) In addition, Aera will inspect all facilities in the event of an emergency and implement contingency measures for notification and clean-up in the event of a spill. (**RR-HAZ-2.**) Therefore, the project would not exacerbate any existing risk from seismic hazards and impacts would be ***less than significant.***

iii-iv) In order to determine liquefaction susceptibility of a region, three major factors must be analyzed. These include the density and textural characteristics of the alluvial sediments, the intensity and duration of ground shaking, and the depth to groundwater.

The nonmarine terrace deposits found at the surface of the project area unconformably overlie the Paso Robles Formation and older strata. The alluvium is mainly of fluvial origin, deposited by the Salinas River and its tributaries. Groundwater depths in the vicinity of the project area are reported to be approximately 460 feet above MSL (Montgomery and Associates, 2022). The project area lies at an elevation of approximately 1,015 feet MSL. Therefore, the depth to groundwater at the project area is anticipated to be approximately 500 feet below ground surface. The composition of the nonmarine terrace deposits as defined by drillers' logs in the area include gravel, sand, and silt.

According to the Geologic Hazards Map for Monterey County, the project area has been evaluated for geologic hazards including erosion, liquefaction, landslide, and seismic. (Monterey County, 2025.) The project area is identified as having a low susceptibility of liquefaction. In addition, the County General Plan Health and Safety Element states that liquefaction is most likely to occur when underlying earth material consists of water-saturated sand or silt (Monterey County, 2010). Based on the Natural Resources Conservation Service's Soil Survey results, soils in the project area are mainly characterized as well-drained sandy loams not prone to liquefaction (NRCS, 2022). A 2020 geotechnical engineering investigation conducted by BSK Associates for the proposed well pads (since constructed) confirmed geotechnical conditions at the site are consistent with the Natural Resources Conservation Service soil survey results (BSK Associates, 2020).

The other form of seismically induced ground failure which may be caused by an earthquake is seismically induced landslides. Landslides triggered by earthquakes have been a significant cause of earthquake damage. Areas that are most susceptible to earthquake-induced landslides are steep slopes in poorly cemented or highly fractured rocks, areas underlain by loose, weak soils, and areas on or adjacent to existing landslide deposits.

The elevation within the project area ranges between 1,015 and 1,215 feet above Mean sea level (MSL). According to the Natural Resources Conservation Service Soil Survey, the parent material underlying much of the project area includes shale, which is highly susceptible to landslides (DOC, 2021). However, the project area has been mapped by Monterey County and is identified as having a low susceptibility of landslide. In addition, the California Department of Conservation's Recently Reported Landslides Database does not report that any landslides within the adjacent Diablo Range, or within 50 miles of the project area, have occurred in the last 50 years (DOC, 2021). The project would utilize existing well pads that were constructed in accordance with current County grading regulations, and the proposed project components would be in flat to relatively flat topography and are not located immediately adjacent to steep slopes, earthquake induced slope instability is not likely to affect the proposed project.

The project area is not located within a landslide or liquefaction zone and therefore, there is no potential for impacts to project infrastructure and facilities related to landslides or liquefaction. Therefore, the project would have ***no impact*** with regards to adverse effects related to landslides or liquefaction.

b) The general description and select physical characteristics of hazards of erosion and shrink/swell potential for soils were reviewed to evaluate potential hazards to the proposed project related to unsuitable soil conditions. The general susceptibility of the soil associations underlying the proposed project to

sheet and rill erosion, wind erodibility, and shrink-swell potential is discussed below.

The elevation within the project area ranges between 1,015 and 1,215 feet above Mean sea level (MSL). The NRCS Soil Survey Geographic (SSURGO) database for Monterey County, California, was reviewed to identify soil units and characteristics underlying the proposed project area (NRCS, 2023). Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water. The project area is composed of Nacimiento-Los Osos complex (30 to 50 percent slopes) with a K factor of 0.24. Clays act as a binder to soil particles, thus reducing the potential for erosion. A wind erodibility group (WEG) consists of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The wind erodibility group for the project area is 6.

Soil erosion and loss of topsoil could occur due to surface disturbing activities including access grading and excavation. However, the proposed wells will be located on two existing well pads. No grading is proposed in undisturbed areas as part of the project, and the well pad slopes have been adequately revegetated. Therefore, significant impacts from erosion or sedimentation from storm water discharges is not anticipated. In addition, the proposed wells are not located on unstable or expansive soils. Therefore, potential erosion and topsoil loss impacts would be ***less than significant***.

c) The project area is composed of very deep, well drained soils that are not unstable nor would the proposed project cause them to become unstable. The project is not located in an identified liquefaction zone. Because the threat of liquefaction occurring at the project area is minimal, the potential for lateral spreading of the ground surface during seismic events is similarly minimal. If seismic-induced liquefaction were to occur, project components, such as wells or pipelines, could be damaged by severe ground failure. However, the project would be designed and constructed according to engineering specifications that account for site-specific geotechnical conditions to resist spreading, subsidence, liquefaction, and collapse. Furthermore, compliance with existing laws and regulations would further alleviate potential liquefaction hazards. Therefore, the project would result in ***less than significant impacts*** on soil stability, landslide, lateral spreading, subsidence, liquefaction, or collapse.

d) Linear extensibility is the method used by the NRCS to determine the shrink-swell potential of soils. Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. The volume change is reported as percent change for the whole soil. The amount and type of clay minerals in the soil influence volume change. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3 percent, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed in areas with expansive soils. The shrink-swell potential at the project area is moderate at 4.5 percent. The project area onsite soils are not considered expansive, as defined in Table 18-1-B of the Uniform Building Code (1994), and the project does not involve construction of any buildings or structures for human occupancy. Therefore, the project would not result in any direct or indirect risks to human life or property and ***no impacts*** would occur.

e) Wastewater from oil and gas production activities would be disposed of via existing UIC injection wells and would not contribute to a municipal sewer system. The project does not include the installation of septic tanks or use of sewer systems. Therefore, there would be a ***less than significant impact*** resulting from wastewater discharges to soils incapable of supporting the use of septic tanks or alternative wastewater disposal systems.

f) The project area is underlain by Pliocene marine and tertiary sedimentary rock, which may contain both marine and terrestrial fossils (Dibblee, 2012) and which is assigned a PFYC Class 3. Class 3 is a moderate or unknown PFYC, where fossil content of geologic units varies in significance, abundance, and predictable occurrence; or have unknown fossil potential in sedimentary units. Units assigned to Class 3 typically have one or more of the following characteristics:

- Field surveys are necessary to verify significant paleontological resources are not present or are very rare.
- Often marine in origin with sporadic known occurrences of vertebrate fossils.
- Vertebrate fossils and scientifically important invertebrate or plant fossils known to occur intermittently;
- Predictability known to be low.
- Poorly studied and/or poorly documented. Potential yield cannot be assigned without ground reconnaissance.

Except where paleontological resources are known or found to exist, management concerns for paleontological resources are generally low and further assessment is usually unnecessary except in occasional or isolated circumstances. Paleontological mitigation is only necessary where paleontological resources are known or found to exist. Aera will implement monitoring, notification, and collection procedures to be followed in the event of inadvertent discovery of paleontological resources during ground-disturbing activities. In the event of an inadvertent discovery, all work at the site of discovery, and in any other locations where damage to the discovery could occur, shall cease until notification of a qualified archaeologist, or other designated on-site specialist. Work may not begin again until the qualified archaeologist, or other designated on-site specialist, confirms it is safe to do so. (See **MM-CUL-1/TCR-1**.)

As part of any WEAP training (**MM-HAZ-1**), all construction personnel shall be trained regarding the recognition and protection of possible buried paleontological resources during construction, prior to the initiation of construction or ground-disturbing activities. Training shall inform construction personnel of the procedures to be followed upon the discovery of paleontological materials. These procedures include notification of a paleontological monitor upon an accidental discovery and cessation of all work at the site of discovery until written approval to proceed is provided by the monitor. All personnel shall be instructed that unauthorized collection or disturbance of fossils and artifacts is unlawful. The probability of impacting significant paleontological resources is low (BLM, 2016). In addition, the project area is relatively flat and there are no unique geologic features present at the project area. Therefore, impacts would be ***less than significant***.

3.8 Greenhouse Gases

Issues	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. GREENHOUSE GASES – Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐

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

3.8.1 ENVIRONMENTAL SETTING AND BASELINE

Recent significant changes in global climate patterns have been associated with global warming, an average increase in the temperature of the atmosphere near Earth's surface. Global warming has been attributed to the accumulation of Greenhouse Gas (GHG) emissions in the atmosphere. GHGs trap heat in the atmosphere, which in turn heats the surface of the earth. Some GHGs occur naturally and are emitted to the atmosphere through natural processes, while others are created and emitted solely through human activities. The emission of GHGs through the combustion of fossil fuels (i.e., fuels containing carbon) in conjunction with other human activities is responsible for contributing to global warming, disrupting ecosystems and making it harder for species to adapt resulting in unprecedented and irreversible levels of extinction and loss of biodiversity. The Intergovernmental Panel on Climate Change has reported that a rapid phase-out of fossil fuel use is essential to limit global warming and avoid the most catastrophic consequences of climate change.

The standard state definition of GHG includes six substances: CO_2; methane (CH_4); nitrous oxide (N_2O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); and sulfur hexafluoride (SF_6) (CARB 2014). Tropospheric O_3 (a short-lived, not-well-mixed gas) and black carbon are also important climate pollutants. CO_2 is the most abundant GHG, and collectively CO_2, CH_4, and N_2O amount to 80 percent of GHG effects. Emissions of other GHGs other than CO_2 are frequently expressed in the equivalent of CO_2, denoted as CO_2e. CO_2e is a measurement used to account for the fact that different GHGs have different potential to retain infrared radiation in the atmosphere and contribute to the greenhouse effect.

3.8.2 ENVIRONMENTAL ASSESSMENT

a) The project would result in GHG emissions from diesel and gasoline-powered construction equipment including drill and completion/workover rig engines, well pad grading equipment, equipment trucks, drill rig crew trucks/vehicles, and other equipment. Emissions could also occur through venting or fugitive losses from valves and fittings, pumps, compressors, and the wellheads.

Construction and operation GHG emissions were estimated using the SCAQMD's CalEEMod 2022.1 model (refer to Appendix A) based on assumptions detailed in Section 2, Project Description, including the project's construction schedule and

operation activities detailed in Section 4.4 and Section 4.5, respectively. Short-term construction emissions (e.g., off-road equipment, worker vehicle trips, grading, drilling, and installation of ancillary equipment) and annual operation emissions associated with the proposed project were evaluated. Based on the results of this modeling, unmitigated construction emissions would result in a total of 279.3 metric tons of carbon dioxide equivalent ($MTCO_2e$). These emissions are amortized over the conservatively assumed lifetime of the project (30 years), with annual emissions estimated at 9.31 $MTCO_2e$ per year. For operational emissions, annual GHG emissions are estimated based on well servicing operations. Thus, operational emissions would result in an estimated 161.25 $MTCO_2e$ per year for the duration of the project. Total project GHG emissions for construction and operations are summarized in Table 3-8.

Table 3-8 Project Estimated Construction GHG Emissions

Activity	GHG Emissions (MTCO2e/year)
Construction (amortized over 30-year life of project)	9.31
Operations	161.25
Total	**170.56**

Note: Construction was modeled for one well as only one well will be drilled at any one time. GHG emissions multiplied by eight (for each well).

The MBARD CEQA Guidelines identify a threshold of significance for operational GHG emissions for stationary sources of 10,000 metric ton of carbon dioxide equivalent per year threshold. This threshold is consistent with CEQA GHG thresholds used by numerous other jurisdictions throughout the state. The project's operations emissions would be below that threshold, In addition, per CEQA Guidelines section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project will comply with an approved plan or mitigation program that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area of the project. To qualify, such a plan or program must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. Examples of such programs include an "air quality attainment or maintenance plan and/or plans or regulations for the reduction of greenhouse gas emissions." Put another way, CEQA Guidelines Section 15064(h)(3) allows a lead agency to make a finding of less than significance for GHG emissions if a project complies with regulatory programs to reduce GHG emissions.

The project would also comply with applicable plans, policies, regulations, and requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. At the time of this writing, Monterey County is developing its Community Climate Action and Adaptation Plan. Therefore, for the purposes of this analysis, the project is evaluated against the CARB 2022 Scoping Plan update. Measures included in the Scoping Plan update would indirectly address GHG emission levels associated with construction activities, including the phasing-in of cleaner technology for diesel engine fleets (including construction equipment) and the development of a low-carbon fuel standard. Policies formulated under the mandate of AB 32, now followed by SB 32, that apply to construction-related activity either directly or indirectly, are assumed to be implemented statewide and would affect the project should those policies be implemented before construction begins. Specifically, implementation of AB 32 control measures for reduced vehicle emissions would decrease GHG emissions from the project.

In addition, CARB approved additional regulations to reduce fugitive and vented emissions from new and existing oil and gas facilities, implementing Measure I-2 of the AB 32 Scoping Plan. The oil field operator is required to comply with this regulation, thus reducing GHG emissions and being consistent with the AB 32 Scoping Plan, the Scoping Plan update, and the *Regulation Order Subarticle 13: Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities § 95665*. Specifically, this regulation covers GHG emissions, predominately methane, from production, gathering and boosting stations, and processing as well as natural gas storage and transmission compressor stations. It addresses both vented (intentional) and fugitive (unintentional) releases of GHGs by processes at facilities in the following sectors: (1) onshore and offshore crude oil or natural gas production; (2) crude oil, condensate and produced water separation and storage; (3) natural gas underground storage; (4) natural gas gathering and boosting stations; (5) natural gas processing plants; and (6) natural gas transmission compressor stations. This regulation establishes emission standards for active and idle equipment and components at these facilities. Compliance with the Scoping Plan Measure I-2 requirements (**RR-GHG-1**) would ensure that the proposed project would not conflict with AB 32 or SB 32.

Further, consistent with MBARD requirements, Aera is required to obtain an Authority to Construct Permit and Permits to Operate for any facility or equipment with the potential to emit air contaminants, as required pursuant to Rule 200. (**RR-AIR-1**.) All permitted equipment must comply with Rule 207 (**RR-AIR-3**), which requires no net increase in emissions above specified thresholds from new and modified stationary sources of all nonattainment pollutants and their precursors. For oil field operations, permitted equipment used for crude oil and natural gas production and processing is subject to Federal New Source Performance Standards (**RR-GHG-3**), which ensure stringent leak detection and

repair requirements. The project must also comply with California's Oil and Gas Regulation (*Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities*, 17 C.C.R. § 95665 et seq. (**RR-GHG-4**). Accordingly, the proposed project would not conflict with the Scoping Plan update or any other plans, policies, or regulations for the purpose of reducing GHG emissions.

Moreover, consumers of electricity and transportation fuels are, in effect, regulated by requiring providers and importers of electricity and fuel to participate in the GHG Cap-and-Trade Program and other programs (e.g., low carbon fuel standard, renewable portfolio standard, etc.). Each such sector-wide program exists within the framework of AB 32 and its descendant laws, the purpose of which is to achieve GHG emissions reductions consistent with the AB 32 Scoping Plan. In summary, the project would increase GHGs emissions from operations, electricity use, and combustion of gasoline/diesel fuels, each of which is regulated near the top of the supply-chain. With respect to GHGs from electricity, the AB 32 Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated instate or imported. Pacific Gas and Electric (PG&E) Company is subject to the AB 32 Cap-and-Trade Program with all of their reported emissions covered under the program (CARB 2022). With respect to GHGs from use and combustion of gasoline/diesel fuels, the Cap-and-Trade Program also covers the GHG emissions associated with the combustion of transportation fuels in California, whether refined instate or imported. The point of regulation for transportation fuels is when they are "supplied" (i.e., delivered into commerce). Accordingly, as with stationary source GHG emissions and the GHG emissions attributable to electricity use, virtually all of GHG emissions from CEQA projects associated with vehicle miles traveled (VMT) are covered under the Cap-and-Trade Program. Thus, project GHG emissions will be consistent with the relevant plan (i.e., AB 32 Scoping Plan).

As to indirect GHG emissions impacts as a result of any oil sold during and as a result of project implementation, in accordance with CEQA Guidelines section 15145, after a thorough investigation the California Department of Conservation has determined that such GHG impacts, while plausible, are too speculative for evaluation.

As such, GHG emissions associated with project operations would be reduced to ***less than significant*** with coverage under the Cap-and-Trade Program (**RR-GHG-2**) and compliance with CARB requirements and the MBARD Rules applicable to the project (**RR-AIR-1**, **RR-AIR-2**, **RR-AIR-3**, **RR-AIR-4**, **RR-AIR-5**, **RR-AIR-6**, **RR-AIR-7**, and **RR-AIR-8**).

b) As described above, California has enacted several pieces of legislation that relate to GHG emissions and climate change, which sets aggressive goals for GHG reductions within the State. The first and most far-reaching is AB 32, now

followed by SB 32, in which CARB must ensure that statewide GHG emissions are reduced to 40 percent below the 1990 level by 2030. While AB 32 establishes control measures that would apply to light, medium, and heavy-duty vehicles, and the proposed project would operate those types of vehicles, these measures are being implemented at the state level and the project would not conflict with the implementation of AB 32 control measures for reduced vehicle emissions. These measures also serve to decrease on-road and off-road GHG emissions from the project.

As also described above, CARB approved additional regulation to reduce fugitive and vented emissions from new and existing oil and gas facilities, implementing Measure I-2 of the AB 32 Scoping Plan. The oil field operator is required to comply with this regulation, thus reducing GHG emissions and being consistent with the AB 32 Scoping Plan, the Scoping Plan update, and the *Regulation Order Subarticle 13: Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities § 95665*. Further, consistent with the requirements of the MBARD Permits, Aera would obtain an Authority to Construct Permit and Permits to Operate for any facility or equipment with the potential to emit air contaminants, as required pursuant to Rule 200 (**RR-AIR-1**), and is required to comply with California's Oil and Gas Regulation (*Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities*, 17 C.C.R. § 95665 et seq.) (**RR-GHG-4**). Accordingly, the project would be conducted in compliance with applicable plans, policies and regulations adopted for the purpose of reducing GHG emissions and impacts would be ***less than significant***.

3.9 Hazards and Hazardous Materials

Issues	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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 reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use compatibility 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 for people residing or working in the project area?	☐	☒	☐	☐

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☒	☐	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☒	☐	☐

3.9.1 ENVIRONMENTAL SETTING AND BASELINE

The project area is within an active oil field on a parcel leased by Aera Energy. The proposed wells would not be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (DTSC 2021, SWRCB 2023).

The project area is located within a State Responsibility Area (SRA) for wildfire risk management (CAL FIRE 2024). Monterey County is not a listed CAL FIRE contract county but is covered by the CAL FIRE San Benito-Monterey Unit (CAL FIRE 2024). Effective April 1, 2024, the CAL FIRE SRA FHSZ map for Monterey County indicates that the project area is within a High FHSZ (CAL FIRE 2024). The project is not located within any very high FHSZs (CAL FIRE 2024).

The nearest school to the project area is Bradley Elementary, approximately 5.2 miles southeast. The nearest private airport is approximately 2.78 miles northwest of the project area, and the nearest public airport is Paso Robles Municipal Airport approximately 20 miles southeast of the project area.

3.9.2 ENVIRONMENTAL ASSESSMENT

a, b) Construction would not occur across any major public rights-of-way and would take place within the confines of existing well pads. The project does not involve the use or transport of significant amounts of hazardous materials. However, vehicles and equipment used for project implementation would contain or require the short-term use of small amounts of various chemicals of potentially hazardous materials including, but not limited to, fuels, lubricating oils, solvents, antifreeze, hydraulic fluid, and compressed gases, used during well drilling and well operation activities. Other specialized chemicals that are potentially hazardous substances and could also be used include paraffin solvent and a hydrochloric acid solution. The solution of 9% hydrochloric acid and 1% hydrofluoric acid, conforming to Senate Bill 4 limit, would be temporarily introduced onsite during well workovers for use in acidization activities aimed at removing scale build up, but the acids will not be stored on-site. During well operations, a small plastic tank will be installed at the pumping unit to introduce

paraffin solvent into the oil stream to prevent the accumulation of wax within the piping. There is anticipated to be less than 55 gallons present at the project area at any given time. (**RR-HAZ-1**.) Additionally, berms have been installed around each well pad to provide containment in the event of small spills during well drilling and well operation.

The potential exists for an accidental release of hazardous materials during well pad preparation and development, drilling, and well completion or operations. Improper management or maintenance of hazardous materials containers, handling of hazardous materials (transfer between containers and equipment), storage, or disposal could result in leaks or larger releases which result in the contamination of soil. Construction activities also have the potential to result in exposure to these hazardous materials by workers, or by the public, if access to the construction site is not adequately controlled or if the materials are not properly handled and contained.

An analysis of well blowouts and consequences in the Inland District of CalGEM was published in 2009, which evaluated data from 1991 to 2005. This westernmost portion of this district borders the San Luis Obispo County and Monterey County line, which is near the project area. The study found the following: 1) blowouts in the district are rare events – with an annual rate of 1 per 150,000 oil production wells, 2) the frequency of blowouts dramatically decreased over the study period even though there was not a similar decrease in well drilling or per well fluid handling in the same time period. Decrease was attributed to increased experience, improved safety culture, and improved technology, 3) there were no injuries to the public from any of the blowouts (Jordan and Benson 2009).

Aera would comply with the AB 1960 implementing regulations and 40 CFR Part 112, which address SPCC Plan requirements; production facilities containment, maintenance, and testing; pipeline construction and maintenance; and maintenance and monitoring of production facilities, safety equipment, and other equipment.

In addition, Aera would comply with CalGEM regulations found in C.C.R., Title 14, Division 2, Chapter 4, Section 1774.2, which requires a Pipeline Management Plan for all waste gas lines less than or equal to four inches in diameter and include a description of the testing method and schedule for all pipelines. (**RR-HAZ-2**.)

Further, although the project is located within a High Fire Hazard Severity Zone, existing procedures will be implemented onsite to avoid and mitigate fire-related impacts, such as maintaining fire extinguishing equipment at designated locations within the oil field and maintaining clearance of vegetation around wells (**DF-HAZ-1**). The project would not result in any new structures that are at

significant risk of loss due to wildfires. As the project is not located within a Very High Fire Hazard Severity Zone, and the project would not cause an alteration that would increase the existing risk of fire related impacts.

Adherence to regulations and procedures would limit the potential for exposure from routine use of hazardous materials during construction such that unhealthful levels of exposure by workers at a construction site, or to the general public located outside of project construction areas, would not be expected.

Furthermore, adherence to these regulations and procedures would limit the potential for hazardous materials to be released to the environment due to routine use. While the routine use of hazardous materials related to project construction would have a low likelihood of resulting in health or environmental consequences from exposure to a hazard by the public offsite or to construction workers onsite, implementation of **MM-HAZ-1** and **RR-HAZ-3** would further ensure safety of workers and the public. Therefore, any hazards to the public from routine use, transport or disposal of hazardous materials or their accidental release would be avoided or reduced to ***less than significant with mitigation.***

MM-HAZ-1 WEAP BMP Training: Aera's WEAP shall include all training requirements identified as Best Management Practices (BMPs) and include annual training for all field personnel (including employees, agents, and contractors). The WEAP shall include hazardous materials and hazardous waste management, and emergency preparedness, release reporting, and response requirements. The WEAP shall also include training regarding the recognition and protection of possible buried paleontological resources during construction, prior to the initiation of construction or ground-disturbing activities. Training shall inform construction personnel of the procedures to be followed upon the discovery of paleontological materials. These procedures include notification of a paleontological monitor upon an accidental discovery and cessation of all work at the site of discovery until written approval to proceed is provided by the monitor. All personnel shall be instructed that unauthorized collection or disturbance of fossils and artifacts is unlawful.

c) The project is not located within one-quarter mile of an existing or proposed school: the nearest school is approximately 5.2 miles away. Therefore, there would be ***no impact*** related to hazardous materials in the vicinity of a school.

d) The project area is not located on a site that is included on a list of hazardous material sites pursuant to Government Code Section 65962.4 (Department of Toxic Substances Control, 2022). Therefore, there would be ***no impact*** related to hazardous materials in the vicinity of a school.

e) The project area is not located within an airport land use compatibility plan. The nearest active public airport is approximately 20 miles away from the

project area. Therefore, the proposed project would have ***no impact*** regarding safety hazards or excessive noise for people residing or working near an airport.

f) Monterey County has adopted the 2020 Emergency Operations Plan (EOP) and 2022 EOP Annex - Evacuation and Transportation Plan (ETP). Section 2.68.080 of the County Code prescribes the purpose and process for adopting and maintaining an EOP for the County of Monterey. According to the ETP, the project area is located in the South County Evacuation Zone Region. In addition, the ETP provides that the Damage Assessment Branch in the County's Planning Section is responsible for making damage assessments to determine if the locality is safe to permit re-entry of residents and property/business owners. When there is known damage to areas accessed by the public, damage assessments are required prior to lifting evacuation orders. Aera has established emergency response and evacuation plans. According to its California Environmental Reporting System Consolidated Emergency Response/Contingency Plan, following notification of an emergency and before facility operations are resumed in areas of the facility affected by an incident, the Emergency Coordinator shall notify the local CUPA and the local fire department's hazardous materials program, if necessary, that the facility is in compliance with requirements to: 1. Provide for proper storage and disposal of recovered waste, contaminated soil or surface water, or any other material that results from an explosion, fire, or release at the facility; and 2. Ensure that no material that is incompatible with the released material is transferred, stored, or disposed of in areas of the facility affected by the incident until cleanup procedures are completed. Aera would comply with all state and local emergency and evacuation requirements as a result of implementation of the EOP and ETP and other authorities, and implementation of its California Environmental Reporting System Consolidated Emergency Response/Contingency Plan would not Impair implementation of or physically interfere with Monterey County's adopted emergency response plan or emergency evacuation plan. Therefore, there would be ***no impact***.

g) In the case of wildfire, the well pads and wells could be damaged. Further, increased human activity during construction could increase the risk for wildfire. However, Aera would comply with all Monterey County Fires Codes (**RR-HAZ-2**). In addition, Aera personnel would engage with the Monterey County Fire Department and adhere to the requirements specified in Aera Energy's Emergency Operations Plan, as well Monterey's EOP and ETP, regarding appropriate emergency evacuation and response routes, as well as ensure that existing procedures are implemented onsite to avoid and mitigate fire-related impacts, such as maintaining fire extinguishing equipment at designated locations within the oil field and maintaining clearance of vegetation around wells. The project would not result in any new structures that are at significant risk of loss due to wildfires. Further, implementation of **MM-HAZ-2** and **MM-HAZ-3**

would reduce the risk and impacts of wildfire. Therefore, impacts would be ***less than significant with mitigation***.

MM-HAZ-2 Fire Prevention: Aera shall implement the following measures:

1. Maintain firefighting apparatus and supplies required by the Monterey County Fire Department.

2. Maintain a list of all relevant fire-fighting authorities for each work site.

3. Have available equipment to extinguish incipient fires and or construction of a fire break, such as: chemical fire extinguishers, shovels, axes, chain saws, etc.

4. Carry water or fire extinguishers and shovels in non-passenger vehicles in the field.

5. Have and maintain an adequate supply of fire extinguishers for welding, grinding, and brushing crews.

6. Protect individual safety to contain any fire that occurs and notify local emergency response personnel.

7. Remove any flammable wastes generated during oil and gas activities regularly.

8. Store all flammable materials used in oil and gas activities away from ignition sources and in approved containers.

9. Allow smoking only in designated smoking areas.

10. Prohibit smoking where flammable products are present and when the fire hazard is high. Train personnel regarding potential fire hazards and their prevention.

11. All internal combustion engines, stationary and mobile, shall be equipped with spark arresters. Spark arresters shall be in good working order.

12. Light trucks and cars with factory-installed mufflers shall be used only on roads where the roadway is cleared of vegetation. Said vehicle types shall maintain their factory-installed muffler in good condition.

13. Fire rules shall be posted on the project bulletin board at the contractor's field office and areas visible to employees.

14. Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials.

15. Personnel shall be trained in the practices of the Fire Safety Plan relevant to their duties. Construction and maintenance personnel shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats.

MM-HAZ-3 Hot Work Equipment: Aera shall restrict the use of chainsaws, chippers, vegetation masticators, grinders, tractors, torches, and explosives at its locations, and ensure the sites where this equipment is used are equipped with portable or fixed fire extinguishers and/or a water tank, with hoses, fire rakes, and other tools to extinguish and or control incipient stage fires. The WEAP shall include fire prevention and response training for workers using these tools.

3.10 Hydrology and Water Quality

Issues	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☒	☐	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
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;	☐	☐	☐	☒

Issues	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

3.10.1 ENVIRONMENTAL SETTING AND BASELINE

The proposed project is located within the jurisdiction of the Central Coast Regional Water Quality Control Board (CCRWQCB). The nearest aquatic features to the proposed project are the Salinas River, which is located approximately 1.7 miles west of the project area, and an intermittent stream that feeds into the Salinas River, Sargent Creek, which is located approximately one mile north of and not present in the project area. The composition of the nonmarine terrace deposits as defined by drillers' logs in the area include gravel, sand, and silt. The uppermost productive unit of the San Ardo Oil Field is the Lombardi Sands, which can be found at about 1,800-feet below ground surface,

The Sustainable Groundwater Management Act Data Viewer website, managed by the California Department of Water Resources (DWR), maps groundwater in Monterey County and other areas. Groundwater primarily occurs within alluvial valleys along the Salinas River and, to a lesser extent, along Sargent Creek. The project area is located along a ridge above the primary water-bearing sediments. Groundwater depths in the vicinity of the project area are reported to be approximately 460-feet above MSL (Montgomery and Associates, 2022). The project area lies at an elevation of approximately 1,015-

feet MSL. Therefore, the depth to groundwater at the project area is anticipated to be approximately 500-feet below ground surface.

The Sustainable Groundwater Management Act was passed in 2014, introducing a state requirement for the development of Groundwater Sustainability Agencies, requiring local jurisdictions to develop and implement a Groundwater Sustainability Plan (GSP) that supports regional and state water conservation efforts (SVBGSA, 2022). The project area lies along the fringe of the Department of Water Resources (DWR)-designated groundwater Upper Valley Aquifer Subbasin area, covered by the Upper Valley Subbasin Groundwater Sustainability Plan (UVSGSP). In 2017, local GSA-eligible entities formed the Salinas Valley Basin Groundwater Sustainability Agency (SVBGSA) to develop and implement the GSPs for the Salinas Valley. The Salinas Valley Groundwater Basin comprises of 9 subbasins, 6 of which the SVBGSA has jurisdiction over, including the Upper Valley Subbasin. The UVSGSP cover the entire 237,670 acres of the Upper Valley Subbasin. The UVSGSP does not identify oil and gas operations as a significant factor affecting the Sustainable Groundwater Management Act objectives in the Subbasin.

3.10.2 ENVIRONMENTAL ASSESSMENT

a) Site preparation and construction activities, such as access grading and excavation could potentially degrade water quality of stormwater runoff through erosion and sedimentation and uncontained leaks or spills of hazardous materials. Disturbed, loose, or stockpiled soil could become erodible during a rainfall event and move offsite. However, the project area is generally flat and located on existing well pads, and significant excavation is not required. Small amounts of various chemicals would be used during well drilling and well operation activities; however, such materials would be handled and disposed of in accordance with applicable regulations. For example, the Project proposes to conduct acidization activities during the operation of the wells that would comply with the provisions added by Senate Bill 4, as well as implementing regulations. (**RR-HAZ-1**.) In addition, the project area does not contain any perennial waterbodies that could further mobilize contaminants or become degraded because of the project, and the project does not have the potential to significantly alter surface water sources.

The Clean Water Act established the National Pollutant Discharge Elimination System (NPDES) permit program, regulating point source discharges of pollutants into waters of the United States. Section 402 of the Clean Water Act provides that storm water discharges associated with industrial activity and construction must be authorized under a NPDES permit. Clearing, grading, and excavation projects that disturb more than one acre are required to obtain a NPDES storm water discharge permit under EPA regulations, though certain regulations such

as 40 C.F.R. §122.26 (a)(2), (e)(8), and (c)(1)(iii) codify exemptions for oil and gas operations. Aera will ensure that discharges of stormwater runoff during construction and operation activities are not contaminated by, or encounter, any overburden, raw material, intermediate products, finished product, byproduct or waste products; are only contaminated by or only encounter sediment; and pursuant to 40 C.F.R. §122.26(c)(1)(iii) that do not contribute to a violation of a water quality standard. (**RR-HYDRO-1**.)

In California, oil and gas operations may be required to obtain a storm water discharge permit (Construction General Permit Order 2009-0009-DWQ, as amended by 2010-00014-DWQ and 2012-0006-DWQ) under the requirements of the Clean Water Act and the C.F.R., and Aera would obtain coverage under the Construction General Permit in advance of construction activity, if required. (**RR-HYDRO-2**.) Construction activities could result in potential effects to the water quality of stormwater runoff through erosion and uncontained leaks or spills of hazardous materials. The project area lies along the fringe of the Upper Valley Aquifer Subbasin area of the Salinas Valley Groundwater Basin. Based on the depth to groundwater and the implementation of **RR-HYDRO-1**, **RR-HYDRO-2**, **MM-HYDRO-1**, and **RR-HAZ-2** resulting in avoidance or reduction of impacts to ***less than significant impacts with mitigation*** to surface and groundwater quality.

MM-HYDRO-1 Stormwater BMPs: Aera shall implement BMPs during construction and operation activities. All selected practices shall be shown on a drainage implementation plan and self-certified as complete and feasible by a licensed professional qualified in drainage and flood control issues. The following BMPs shall be implemented and shown on the drainage plan:

1. Utilizing established facilities design, and construction or similar standards as applicable appropriate (e.g., ASTM, API).

2. Implementing good housekeeping and maintenance practices.

3. Preventing trash, waste materials and equipment from construction storm water;

4. Maintaining the wellhead, compressors, tanks and pipelines in good condition without leaks or spills.

5. Designing and maintaining a graded pad with berms to not actively erode and discharge sediment; and

6. Maintaining vehicles in good working order.

7. Implementing spill prevention and response measures:

8. Utilizing preventative operating practices such as tank level monitoring, safe chemical handling and conducting regular inspections.

9. Developing and maintaining a spill response plan.

10. Conducting spill response training for employees and have a process to ensure contractors have the necessary training.

11. Maintaining spill response equipment on site.

12. Implementing material storage and management practices.

13. Preventing unauthorized access.

14. Utilizing "run-on" and "run-off" control berms and swales around all pad areas; and

15. Stabilizing exposed slopes through vegetation and other standard slope stability methods.

b) Construction of the eight wells will require a total of approximately 193,200 gallons of water. This includes, on a per well basis, approximately 11,550 gallons during drilling activities and 12,600 gallons during well completion activities. Dust suppression will be performed continuously during construction activities, for a total of approximately 58,800 gallons, or at most 10,500 gallons per day.

Further, the project would involve use of existing earthen well pads (**DF-HYDRO-1**) and would not decrease the area for groundwater recharge. Groundwater will be sourced from three existing water source wells (two wells are used for utility water and one well is used for potable water as classified by the State Water Resources Control Board) owned and operated by Aera, located within the Salinas Valley Groundwater Basin, during project implementation for well pad locations, dust control, drilling, and well completion. (**DF-HYDRO-2**) Vacuum trucks will be used to transport the water to/from the locations generating approximately two vehicle trips per day. (**DF-HYRDO-1**) The amount of water required for drilling is representative of the historical use of these water source wells. The amount of groundwater used would not represent a significant percentage of the total ground storage capacity of the Paso Robles Aquifer within the Upper Valley Groundwater Subbasin. The incremental increase in groundwater pumping is not expected to significantly affect groundwater recharge. In addition, there is no record of measurable subsidence or declining groundwater levels at the San Ardo Oil Field, with existing Aera operations. Thus, the amount of groundwater used for the proposed project will have negligible potential to substantially deplete groundwater supplies or interfere substantially with groundwater recharge. The potential for the current project's groundwater

use to result in a net deficit in groundwater aquifer volume or a lowering of the local groundwater table is considered to be ***less than significant***.

c, i-iv) The project will include minor alterations of existing disturbed areas, including potential grading of existing well pads for levelling purposes. (Therefore, the proposed project would not impede infiltration of stormwater through the addition of impervious surfaces. The project does not involve the alteration of any natural drainages or streams, nor change the drainage pattern at the project area. Construction activity could result in potential effects to the water quality of stormwater runoff but would not increase the rate of stormwater runoff. With the implementation of **RR-HYDRO-1** the project would result in ***no impacts*** with regard to increases in erosion, siltation, or the rate or amount of surface run-off or the capacity of existing or planned stormwater drainage systems.

d) The project area is not located in a flood hazard, tsunami, or seiche zone (FEMA 2024, DOC 2022) and would not impede or redirect any flood flows. The Federal Emergency Management Agency (FEMA) designates the boundaries of flood hazard areas, or those areas anticipated to be inundated in the event of a 100-year storm event, on Flood Insurance Rate Maps (FIRMs). FIRMs for the project area indicate that the project area is located in areas designated as Zone X, or areas with a minimal flood hazard. The Zone X designation means that the area would have a moderate to low risk of inundation following a storm event and is protected by a levee or dam from 100 year flood events as well as 500 year storm events. Therefore, there would be ***no impact*** from the risk of pollutant release due to project inundation.

e) As described in response to b) above, water for the proposed project would be obtained from existing water source wells and would not conflict with the UPSGSP. (**DF-HYDRO-2**.) Therefore, the proposed project would not conflict with any sustainable groundwater management plans or water quality control plans, and there would be ***no impact***.

3.11 Land Use and Planning

Issues	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. LAND USE AND PLANNING – Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

3.11.1 ENVIRONMENTAL SETTING AND BASELINE

The proposed wells are located within an unincorporated area of Monterey County in a HI Mineral Extraction zoning district. Oil production is a permitted use for this zoning type. As per Monterey County Code Chapter 21.28.060, allowable uses within this district include the "removal of minerals or natural materials for commercial purposes."

Most of the project area and surrounding area is bare earth, with dirt roads throughout. The closest established community to the project area is San Ardo, which is approximately five miles north of the project area. The nearest residence and sensitive receptor to the project area is a residence approximately 1 mile north of the project. The project area is surrounded by existing oil field operations, primarily to the north and west.

Existing access to the property is primarily by taking Wunpost Road along U.S. Highway 101 and traversing several parcels across San Ardo Oil Field.

3.11.2 ENVIRONMENTAL ASSESSMENT

a) Project construction and operation activities would be confined within the project area, located within an existing oil field and would utilize existing access routes; therefore, the project would not physically divide any community, and therefore, ***no impacts*** to an established community would occur.

b) The project would not conflict with any local, regional, or federal land use plan. Oil and gas extraction is a permitted land use within a HI Mineral Extraction zoning district. Therefore, there would be ***no impacts*** related to any land use plans, policies, or regulations.

3.12 Mineral Resources

Issues	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. MINERAL RESOURCES – Would the project:				
a) Result in the loss of availability of a known mineral resource classified MRZ-2 by the State Geologist that would be of value to the region and the residents of the state?	☐	☐	☒	☐
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?	☐	☐	☒	☐

3.12.1 ENVIRONMENTAL SETTING AND BASELINE

The project area is located within the administrative boundaries of the San Ardo Oil Field. There are no other aggregate resources, consisting of stone, sand, and gravel, identified within the project area.

Mineral Resource Zones (MRZ) have been designated by DOC to identify areas with significant mineral resources. The project area is not located in an area identified by the California Department of Conservation as located within a Mineral Resource Zone, and the project area is not adjacent to any mineral

resource zones. The project is within the County's HI Mineral Extraction zoning district. As per Monterey County Code Chapter 21.28.060, allowable uses within this district include the "removal of minerals or natural materials for commercial purposes".

3.12.2 ENVIRONMENTAL ASSESSMENT

a, b) The project would result in the production of a known mineral resource (e.g., petroleum) that is of value to the region and the residents of the State. Therefore, the project would result in a ***less than significant impact*** related to mineral resources.

3.13 Noise

Issues	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. NOISE – Would the project:				
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?	☐	☐	☒	☐
b) Generation of 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?	☐	☐	☐	☒

3.13.1 ENVIRONMENTAL SETTING AND BASELINE

Noise is generally defined as unwanted sound that annoys or disturbs people and potentially causes an adverse psychological or physiological effect on

human health. Because noise is an environmental pollutant that can interfere with human activities, evaluation of noise is necessary when considering the environmental impacts of a proposed project.

Sound is mechanical energy (vibration) transmitted by pressure waves over a medium such as air or water. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In particular, the sound pressure level is the most common descriptor used to characterize the loudness of an existing sound level.

For a point source such as a stationary compressor or construction equipment, sound attenuates based on geometry at a rate of 6 dB per doubling of distance. For a line source such as free-flowing traffic on a freeway, sound attenuates at a rate of 3 dB per doubling of distance. Atmospheric conditions including wind, temperature gradients, and humidity can change how sound propagates over distance and can affect the level of sound received at a given location. The degree to which the ground surface absorbs acoustical energy also affects sound propagation. Sound that travels over an acoustically absorptive surface, such as grass, attenuates at a slightly greater rate than sound that travels over a hard surface, such as pavement. The increased attenuation is typically in the range of 1–2 dB per doubling of distance. Barriers, such as buildings and topography that block the line of sight between a source and receiver, also increase the attenuation of sound over distance.

Vibration is acoustic energy transmitted as waves through a solid medium, such as soil or concrete. Like noise, the rate at which pressure changes occur is called the frequency of the vibration, measured in Hz. Vibration may be the form of a single pulse of acoustical energy, a series of pulses, or a continuous oscillating motion.

Ground-borne vibration is the ground motion about some equilibrium position that can be described in terms of displacement, velocity, and acceleration. It can be generated by transportation systems, construction activities, and other large mechanical systems. Vibration motion moves in the X, Y and Z axes.

The way that vibration is transmitted through the ground depends on the soil type, the presence of rock formations or man-made features and the topography between the vibration source and the receptor location. As a general rule, vibration waves tend to dissipate and reduce in magnitude with distance from the source. Also, the high frequency vibrations are generally attenuated rapidly as they travel through the ground, so that the vibration received at locations distant from the source tends to be dominated by low-frequency vibration. The frequencies of ground borne vibration most perceptible to humans are in the range from less than 1 Hz to 100 Hz.

When ground-borne vibration arrives at a building, a portion of the energy will be reflected or refracted away from the building, and a portion of the energy will typically continue to penetrate through the ground-building interface.

However, once the vibration energy is in the building structure, it can be amplified by the resonance of the walls and floors. Occupants can perceive vibration as motion of the building elements (particularly floors) and also rattling of lightweight components, such as windows, shutters or items on shelves. At very high amplitudes (energy levels), low-frequency vibration can cause damage to buildings.

Current noise conditions at the project area are characterized by oil and gas operations and vehicular traffic. To date, no noise complaints have been received regarding existing operations at the oil field.

There are no sensitive receptors within one mile of the project area. The nearest residential property to the proposed project is just over one mile (approx. 5,438 feet) away. The Monterey County's Noise Control Ordinance provides that at any time of the day, it is prohibited within the unincorporated area of Monterey County "to operate, assist in operating, allow, or cause to be operated any machine, mechanism, device, or contrivance which produces a noise level that exceeds seventy (70) dBA measured 50-feet or more therefrom. The prohibition in this Section shall not apply to aircraft nor to any such machine, mechanism, device or contrivance that is operated in excess of 2,500-feet from any occupied dwelling unit." (County Ordinance No. 5315, Chapter 10.60.030) In addition, any loud and unreasonable sound any day of the week from 9:00 p.m. to 7:00 a.m. that exceeds 65 dba is prohibited. (County Ordinance No. 5315, Chapter 10.60.040). Nighttime hours are defined as between 9:00 pm to 7:00 am the following morning. There are no maximum noise level limits for daytime hours as defined in the Code.

a) As detailed in Section 2.4, project construction would occur intermittently over a period of approximately two to three months. Well drilling activities will occur 24 hours per day for a period of approximately five days per well. Operational noise will occur primarily due to the operation of pumping units and steam injection activities. In addition, up to one well workover at each well per 1.5 years is expected with a duration of two days for the workover work at each well. As such, short-term construction and operational noise impacts could result from project implementation, including grading the well pads, construction of accessory facilities (including new pumping units and flowlines); transporting the drilling rig, associated equipment, workers, and materials to the well pad sites; well drilling; construction equipment operations; and workover operations.

Construction noise is usually made up of intermittent peaks and continuous lower levels of noise from equipment cycling through use. The types and numbers of construction equipment near any specific receptor location would vary over time. As summarized above, there are no sensitive receptors within one mile of the project area. Potential noise impacts were modeled based on

the project's highest potential noise-producing activities associated with well drilling and the distance to the closest noise-receptor; and assuming nighttime ambient noise levels of 45 dBA (9:00 PM to 7:00 AM).

As indicated, the Monterey County Noise Ordinance applies a maximum exterior noise level standard of 65 dBA for exterior noise levels in unincorporated areas of Monterey County. (County Ordinance No. 5315, Chapter 10.60.040). The project's noise impacts as they relate to the installation of the new wells is therefore evaluated against an absolute 65 dBA standard.

The highest potential noise-producing activities will include the use of rigs, generators, mud pumps, vacuum trucks, and bull trucks (refer to Table 2-1), which will generate noise that is received by the closest noise-sensitive receptors. The closest noise-sensitive receptor to the project area is a residential home located approximately 1.03 miles from the edge of the proposed project area. Sound pressure levels at 50 feet were provided for all on-site fixed-source equipment and are shown in Appendix E (Noise Calculations). Assuming all equipment on the project area is operating simultaneously and accounting for only distance attenuation as described above, the calculated noise level at the closest noise-sensitive receptor is 51 dB(A).

While the calculated noise level is expected to increase the nighttime average ambient noise level of 45 dBA, it will not exceed the maximum level of 65 dba as listed in Section 10.60.040 in the Monterey County Code of Ordinances. As such, impacts would be ***less than significant***.

b) Construction would result in temporary ground vibration. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. Construction activities most likely to cause vibration include heavy construction equipment and drilling. Operational equipment such as pumping units and other infrastructure may cause an incremental increase in ground-borne vibration. Ground-borne vibration dissipates very rapidly with distance, reducing the typical construction-related vibrations to less than the threshold of 0.2 in/sec for typical non-engineered timber and masonry buildings at a distance greater than 10-feet from the source and to an imperceptible level at about 200-feet from the source (FTA 2006).

The peak particle velocity (PPV) is defined as the maximum instantaneous velocity of a particle as it transmits a vibration wave. The accepted unit for measuring PPV is inches per second (ips). PPV is appropriate for evaluating the potential for building damage and for evaluating human response to ground-

borne vibration. When reporting measured PPV values, a time interval is generally specified over which the PPV values were recorded during the measurement process.

Table 3.13 displays typical vibration exposure guidelines for various types of structures and Table 3.13-1 categorizes typical human responses to exposure of varying vibration levels.

Table 3.13 Structural Guideline Vibration Criteria

Structure and Condition	Maximum PPV (ips)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile Buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structure	0.5	0.3
New residential structure	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

NOTE: Transient sources create a single isolated vibration event. Continuous/frequent intermittent sources include impact pile drivers, vibratory pile drivers, and vibratory compaction equipment.

Table 3.13-1 Human Guideline Vibration Criteria

Human Response	Maximum PPV (ips)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.10
Severe	2.0	0.4

NOTE: Transient sources create a single isolated vibration event. Continuous/frequent intermittent sources include impact pile drivers, vibratory pile drivers, and vibratory compaction equipment.

Typical vibration levels produced by typical project construction and drilling equipment are included in Table 3.13-2 at a reference distance of 25-feet. The reference vibration levels are derived from a combination of field vibration measurements and data made available by the Federal Transit Administration (2018).

Table 3.13-2 Vibration Analysis Results

Activity	Typical PPV at 25 feet (ips)	Distance to Nearest Structure (ft)	Distance to Vibration Limit for Fragile Buildings (ft)	Distance to Barely Perceptible Level (ft)
Site Preparation				
Dozer	0.089	5,438	22	182
Water Wagon	0.076	5,438	19	158
Work Trucks	0.076	5,438	19	158
Well Drilling				
Drilling Rig	0.022	5,438	6	51

Within Table 3-11 the "Distance to Vibration Limit for Fragile Buildings" column shows the approximate closest distance at which each piece of equipment can operate without generating vibration levels above 0.1 ips at residential structures. The "Distance to Barely Perceptible Level" show the approximate closest distance at which each piece of equipment can operate without generating vibration levels perceptible to humans. The approximately distance to the closest occupied residential structure and the calculated distances at which the equipment would generate 0.1 ips and 0.01 ips reveals that the structures are located far beyond the area of potential damage and the area for potential human annoyance. As such, impacts would be ***less than significant***.

c) The project area is not located within the vicinity of a private airstrip or an airport land use plan – the nearest private airport is located roughly 2.78 miles away and the Paso Robles Municipal Airport is located roughly 20 miles away. The proposed project will not involve construction expansion of the airport and would not result in the addition of sensitive receptors inside of the 65 dBA Community Noise Equivalent Level (CNEL) airport noise contour. Therefore, **no impact** would occur due to the proximity to the airport.

3.14 Population and Housing

Issues	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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 businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

3.14.1 ENVIRONMENTAL SETTING AND BASELINE

The project would occur within the existing San Ardo Oil Field. to the existing McDonald Anticline and Carneros Creek Oil Fields. The nearest incorporated city to the project area is San Ardo, which has a current population of 481 (U.S. Census Bureau 2023).

3.14.2 ENVIRONMENTAL ASSESSMENT

a) Project implementation would result in the addition of eight oil wells to existing well pads and the nature of the land use would not change. Site preparation and construction activities would involve the employment of up to 22 workers over a period of about two months, operations. All workers are expected to come from the Monterey County and San Luis Obispo area. Once the construction is complete, no new workers would be required. Therefore, the project would have ***no impact*** on population growth.

b) The project would occur within the existing San Arod Oil Field. The project does not include the construction of new homes or businesses. The project would use existing infrastructure, would not require extension of existing roads and infrastructures, and would not result in the displacement of any residences or people. As such, the project would have ***no impact*** on housing or resident displacement.

3.15 Public Services

Issues	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. PUBLIC SERVICES – Would the project:				
a) 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: i) Fire protection? ii) Police protection? iii) Schools? iv) Parks? v) Other public facilities?	☐	☒	☐	☐

3.15.1 ENVIRONMENTAL SETTING AND BASELINE

The project area is currently served by the Monterey County Sheriff's Department and Monterey County Fire Department. There are no schools or parks within the vicinity of the project area (the nearest school, Bradley Elementary School, is approximately 5.2 miles from the project area).

3.15.2 ENVIRONMENTAL ASSESSMENT

a, i-v) The project would occur within the San Ardo Oil Field, only incrementally increasing the amount of equipment and infrastructure in the area. The incremental increase in equipment would not require new or expanded fire protection or other safety efforts. The number of vehicles at the site would

increase by approximately 10-15 during construction of the project, during normal project operations the number of vehicles would decrease to 1-2 vehicles, and during workover operations every 1.5 years increase to 5-7 vehicles. No new permanent employees would be necessary for project implementation, so the project would not induce population growth in the area. Therefore, the project would not put an increased burden on off-site public services, including police, school, and other governmental services. Implementation of **MM-HAZ-2** and **MM-HAZ-3** would ensure risks of wildfire are minimized and do not result in an increased burden on fire protection services. Therefore, impacts to public services would be ***less than significant with mitigation***.

3.16 Recreation

Issues	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. RECREATION – Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

3.16.1 ENVIRONMENTAL SETTING AND BASELINE

The proposed project would be within the San Ardo Oil Field and would be similar in nature to the existing conditions in the area. There is no recreational development within the project vicinity.

3.16.2 ENVIRONMENTAL ASSESSMENT

a, b) The project would not result in any new, permanent employees, and hence use of existing neighborhood and regional parks or recreational facilities

would not increase because of project implementation. The project workforce is expected to come from the local area. Further, recreation would not be affected by noise or traffic associated with construction and operation of the project because there is no nearby recreational development. Thus, the project would have no effect on demand for existing nearby parks or other recreational facilities. Therefore, there would be ***no impact*** to recreational facilities.

3.17 Transportation

Issues	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. TRANSPORTATION – Would the project:				
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☐	☒
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐
c) Substantially increase hazards to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d) Result in inadequate emergency access?	☐	☐	☐	☒

3.17.1 ENVIRONMENTAL SETTING AND BASELINE

Regional access to the project area would be provided via U.S. Highway 101, a two-lane highway that provides north-south travel along the western edge of the San Ardo Oil Field. U.S. Highway 101 to Wunpost Road provides access to the project area; Wunpost Road runs parallel with U.S. Highway 101 and leads to the western entrance of the oil field.

3.17.2 ENVIRONMENTAL ASSESSMENT

a) The project would not involve any transportation improvements or programs that would conflict with adopted policies, plans, or programs supporting alternative transportation, such as the Monterey County Regional Transportation Plan. The project does not involve any roadway improvements or closures, or the development of any new driveways or access roads, and would be consistent with the Monterey County Zoning Ordinance, Chapter 21. As such ***no impact*** would occur.

b) During project construction the maximum number of daily trips to the project area will be 12 during the drilling phase. All trips would originate from nearby areas in Monterey County and San Luis Obispo County. project equipment would remain onsite during construction. During operations, the project would be staffed by 1-2 current oilfield personnel. The State Office of Planning and Research (OPR) Technical Advisory on Evaluating Transportation Impacts in CEQA (December 2018) states that projects that generate fewer than 110 automobile trips per day generally may be assumed to cause a less than significant transportation network. As the project would generate fewer than 110 one-way trips per day, the project would not cause a significant increase in vehicle miles traveled and impacts would be ***less than significant***.

c) The project would not result in any changes to any roads, intersections, streets, or highways, nor would it provide any incompatible uses to the street and highway system. All vehicles that would be used for travel to and from the project area would be licensed and comply with all appropriate transportation laws and regulations including obtaining and adhering to provisions of any required permits for oversized loads. The project requires no new circulation improvements, and no geometric design features or incompatible uses are proposed as part of the project. As such, impacts related to transportation design hazards would be ***less than significant***.

d) The project would not create significant traffic volumes during construction or operations. It also would not obstruct movement of vehicles along County-defined emergency access routes. The project would occur within an existing developed oil field and would not result in any changes in ingress or egress to the site. As such, the project would have ***no impact*** on emergency access.

3.18 Tribal Cultural Resources

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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 § 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: i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or 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 § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

3.18.1 ENVIRONMENTAL SETTING AND BASELINE

The project area has been historically used as agricultural grazing land dating back to prior to the development of the site as an oil field in the 1950's and is currently operating for the purpose of oil production. The project is within a heavily developed oil production field,

To comply with a Monterey County Conditional Use Permit for the San Ardo Oil Field, AE, on behalf of Aera, conducted cultural resources study, a portion of which included the project area that is the subject of this ISMND. In November 2010, AE submitted a Sacred Lands File search request to the Native American Heritage Commission (NAHC). Approximately two weeks later, the NAHC responded indicating that there are no known places of importance to Native Americans within or adjacent to the oil field but provided a list of Tribes and Tribal contacts for further information (AE 2010; Appendix D). The identified Tribes included:

- Salinan-Chumash Nation

- Salinan Tribe of Monterey, San Luis Obispo Counties
- Xolon Salinan Tribe

On December 22, 2010, AE sent consultation letters to these Tribes and Tribal contacts and as of the date of its report (February 2011) had not received any responses to those letters. AE's study also identified that portions of the San Ardo Field has been the subject of 14 previous cultural resources studies, ranging between 1980 through 2010. AE also performed a pedestrian survey which resulted in identification of one historic-period ranching feature.

In March 2024, to meet the requirements of Public Resources Code section 21080.3.1 and Assembly Bill 52, CalGEM submitted a request to the NAHC seeking assistance with identifying California Native American Tribes that are traditionally and culturally affiliated with the project area. That same month, the NAHC responded and provided a list of 10 Tribes and 17 Tribal contacts. The identified Tribes included:

- Amah Mutsun Tribal Band
- Amah Mutsun Tribal Band of Mission San Juan Bautista
- Costanoan Rumsen Carmel Tribe
- Indian Canyon Mutsun Band of Costanoan
- Ohlone/Costanoan-Esselen Nation
- Rumsen Am:a Tur:ataj Ohlone
- Salinan Tribe of Monterey, San Luis Obispo Counties
- Tule River Indian Tribe
- Wuksachi Indian Tribe/Eshom Valley Band
- Xolon-Salinan Tribe

On June 18 and 19, 2024, CalGEM provided consultation notification letters to all provided contacts. The letters provided a brief description of the project, a map identifying the location of the project area, the lead agency's contact information, and a notification that requests for consultation would be accepted within sixty (60) days of receipt of the letter, in accordance with Public Resources Code Section 21080.3.1. On June 19, 2024, a Xolon-Salinan Tribe representative responded and requested further information regarding the location of the proposed wells, which was subsequently provided on June 27 and 28, 2024. On August 3, 2024, CalGEM followed up with the Tribal contacts

concerning the consultation notification letters. On September 10, 2024, in light of the Tribe's previous engagement,

CalGEM contacted the Xolon-Salinan Tribe via email to inquire whether they were interested in consultation. On September 11, 2024, the Xolon-Salinan Tribe responded regarding the timeline for the project, asked a clarifying question regarding available cultural studies, expressed concerns regarding the proposed drilling activities in proximity to the Salinas River, and stated a desire to have a Tribal monitor on site during "[a]ny substantial drilling." CalGEM responded that same day to coordinate a meeting to address the Tribe's comments and engage in Tribal further consultation. That meeting was held on October 22, 2024. After the meeting, the Xolon-Salinan Tribe sent CalGEM a copy of their consultation best practices policy on October 27, 2024, which discusses the importance of having tribal monitors. Thereafter, on February 26 and 28, 2025, CalGEM provided the Xolon-Salinan Tribe with project-related documents for review and comment. On March 6, 2025, the Xolon-Salinan Tribe responded asking several questions and making requests concerning the previous cultural studies conducted at portions of the San Ardo Oil Field. CalGEM responded to these questions and requests on March 13, 2025. On April 23, 2025, the Xolon-Salinan Tribe confirmed that they had no further comments or questions concerning the proposed project.

To date, no other requests for consultation from the listed California Native American Tribes have been received as part of the CalGEM's tribal consultation efforts.

3.18.2 ENVIRONMENTAL ASSESSMENT

a, i-ii) As a result of the above efforts, no known tribal cultural resources have been identified within the project area or vicinity. Therefore, it is not expected that tribal cultural resources would be impacted during project construction or operations. In the unlikely event of a tribal cultural resource discovery, Aera would implement the following mitigation measures to reduce the potential to cause a substantial adverse change to a tribal cultural resource: **MM-CUL-1/TCR-1**, **MM-CUL-2/TCR-2**, and **MM-CUL-3/TCR-3**. Therefore, impacts to tribal cultural resources would be ***less than significant with mitigation***.

MM-CUL-1/TCR-1 Discovery of Previously Unknown Cultural or Tribal Cultural Resources: In the event any potential tribal cultural resources, archaeological resources/materials, other cultural resources, or articulated or disarticulated human remains are discovered during ground disturbance or construction activities, Aera shall cease any ground disturbing and construction activities within 50 feet of the find, or an agreed upon distance based on the project area and nature of the find. Work stoppage shall remain in place until the

qualified archaeologist, or other designated on-site specialist, determines the nature of the discovery, and evaluates the significance of the discovery and

recommends appropriate treatment measures. Per CEQA Guidelines section 15126.4(b)(3), project redesign and preservation in place shall be the preferred means to avoid impacts to significant historical resources. If it is demonstrated that resources cannot be avoided, the qualified archaeologist shall develop additional treatment measures in consultation with CalGEM, which may include data recovery or other appropriate measures. CalGEM will consult with appropriate Native American representatives in determining appropriate treatment for unearthed cultural resources if the resources are prehistoric or Native American in nature. Tribal cultural resources shall not be photographed nor be subjected to any studies beyond such inspection as may be necessary to determine the nature and significance of the discovery. If the discovery is confirmed as potentially significant or a tribal cultural resource, an Environmentally Sensitive Area (ESA) will be established using fencing or other suitable material to protect the discovery during subsequent investigation. No ground-disturbing activities will be permitted within the ESA until the area has been cleared for construction. The exact location of the resources within the ESA must be kept confidential and measures shall be taken to secure the area from site disturbance and potential vandalism. If after consultation it is deemed appropriate, archaeological materials recovered during any investigation shall be curated at an accredited curation facility. The qualified archaeologist shall prepare a report documenting evaluation and/or additional treatment of the resource. A copy of the report shall be provided to CalGEM and the Northwest Information Center.

MM-CUL-2/TCR-2 Cultural and Tribal Cultural Resources Monitoring: In addition to the procedures required by **MM-CUL-1/TCR-1** and **MM-CUL-3/TCR-3**, at the discretion of CalGEM and the designated representatives from any consulting Tribe(s), Aera shall provide cultural and tribal cultural resources monitoring during all construction activities for the project. Monitors may include cultural or tribal resource specialists and representatives from area Native American Tribes. Prior to engaging in monitoring, monitors must be provided the training required by **MM-HAZ-1**. Monitors will also participate in daily project tailgate safety meetings. The monitors shall have the authority to temporarily halt or redirect construction in the event that potentially significant cultural resources or tribal cultural resources are discovered during project-related activities. The work stoppage or redirection shall occur to an extent sufficient to ensure that the resource is protected from further impacts. Aera shall provide a minimum two-week notice to CalGEM and the designated representatives from the consulting Tribe(s) prior to all activities requiring monitoring and shall provide safe and reasonable access to the project area. The monitor(s) shall work in collaboration with Aera.

MM-CUL-3/TCR-3 Unanticipated Discovery of Human Remains: If human remains or associated grave goods (e.g., non-human funerary objects, artifacts, animals, ash or other remnants of burning ceremonies) are uncovered during project construction, Aera shall immediately halt all ground disturbing work within 50-feet of the discovery or other agreed upon distance based on the project area and nature of the find; treat the remains with respect and dignity; contact the Monterey County Coroner within 24 hours to evaluate the remains; and follow the procedures and protocols set forth in CEQA Guidelines Section 15064.5(e)(1), California Health and Safety Code Section 7050.5 and California Public Resources Code Section 5097.8. The Monterey County Public Works, Facilities and Parks Department shall be notified concurrently. If the County Coroner determines the remains to be of Native American origin, the County Coroner shall contact the Native American Heritage Commission within 24 hours of this determination, in accordance with Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code 5097.98 (as amended by Assembly Bill (AB) 2641). The Native American Heritage Commission shall designate a Most Likely Descendant for the remains per Public Resources Code 5097.98. Per Public Resources Code 5097.98, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred with the most likely descendant regarding their recommendations, if applicable, taking into account the possibility of multiple humans remains. If the remains are determined to be neither of forensic value to the coroner, nor of Native American origin, provisions of the California Health and Safety Code (7100 et. seq.) directing identification of the next-of-kin will apply.

Unless otherwise required by law, the site of any reburial of Native American human remains shall not be disclosed and will not be governed by public disclosure requirements of the California Public Records Act (Cal. Govt. Code § 6250 et seq.).

3.19 Utilities and Service Systems

Issues	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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 storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☐	☒
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☐	☒
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

3.19.1 ENVIRONMENTAL SETTING AND BASELINE

Electrical services in the immediate area are provided by PG&E. PG&E obtains its energy supplies from power plants and natural gas fields in Northern

California, as well as from energy purchased outside its service area and delivered through high-voltage transmission lines and pipelines. Power is generated from various sources, including fossil fuel, hydroelectric, nuclear, wind, and geothermal plants, and is fed into the electrical grid system. The wells will be operated by electric motors connected to Aera's existing San Ardo electrical infrastructure and therefore normal operations would not have any impact on the total electricity consumption in Monterey County.

The project area is within the Department of Water Resources-designated groundwater Salinas Valley Groundwater Basin, covered by the Monterey Subbasin Groundwater Sustainability Plan. The water necessary for the proposed project would primarily be sourced from three existing water source wells owned and operated by Aera.

The nearest landfill is the Paso Robles Landfill, located approximately 37 miles southeast of the project area.

3.19.2 ENVIRONMENTAL ASSESSMENT

a) The project would not require construction of or relocate new water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunication facilities, in order to drill or operate the new wells. Stormwater would utilize existing infrastructure across the site and electric power

would be used via existing utility infrastructure. Therefore, there would be ***no impact***.

b) Construction of the eight wells will require a total of approximately 193,200 gallons of water. This includes, on a per well basis, approximately 11,550 gallons during drilling activities and 12,600 gallons during well completion activities. Dust suppression will be performed continuously during construction activities, for a total of approximately 58,800 gallons, or at most 10,500 gallons per day. Operation of the wells would not require any water, except that a small amount of water would be used for dust control as part of normal oil field operations. The water necessary for the proposed project would be sourced from three existing water source wells owned and operated by Aera. (**DF-HYDRO-2**) Two wells are used for utility water; one well is used for potable water. The project would not require purchase of fresh water from a municipal provider or additional groundwater supplies beyond the water rights already held by Aera. Therefore, the proposed project would have sufficient water supplies during normal, dry, and multiple dry years, and ***less than significant*** impacts to water supply.

c) Some volumes of waste would be generated during the construction activity associated with drilling of the wells. The waste material, consisting of drilling mud and cuttings, would be trucked offsite for disposal in an approved landfill. (**DF-UTL-1**.) Sufficient landfill capacity exists to handle the one-time disposal of the

minimal amount of this material. No soil would be removed from the site and disposed of as a result of the construction of the proposed project, and operation of the wells would not generate any solid wastes. Therefore, any increase in solid municipal waste would be considered ***less than significant*** because: 1) it is a one-time increase, 2) it would not exceed the capacity of the servicing landfill, and 3) it would comply with all local, state, and federal regulations related to solid waste.

d, e) Drilling mud and cuttings and water generated during the construction phase will be transported off-site for disposal at an approved disposal facility. (**DF-UTL-2**.). Operation and maintenance activities associated with the project would not generate a significant amount of solid waste and would not affect the permitted capacity of landfills in the area. Therefore, the project would not generate excess solid wastes and there would be ***no impact***. The project would also comply with federal, state, and local management solid waste regulations. There would be ***less than significant*** impacts related to solid waste.

3.20 Wildfire

Issues	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐

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?	☐	☐	☒	☐

3.20.1 ENVIRONMENTAL SETTING AND BASELINE

Fire risk for the project area was determined using CAL FIRE FHSZ maps; areas are separated by SRA, Local Responsibility Area, and Federal Responsibility Areas. The risk from wildfire ranks from low to very high. The project area is located within an SRA (CAL FIRE 2024). Monterey County is not a listed CAL FIRE Contract County but is covered by the CAL FIRE San Benito-Monterey Unit (CAL FIRE 2024). Effective April 1, 2024, the CAL FIRE SRA FHSZ map for Monterey County indicates

that the project area is within a High FHSZ (CAL FIRE 2024). The project is not located within any very high FHSZs (CAL FIRE 2024).

The Monterey County Emergency Operations Plan establishes the county's incident management organization that supports first responders, facilitates public information and interagency communication, and maintains continuity of government. The Department of Emergency Management has developed hazard and function specific annexes to support implementation of the emergency operations plan (Monterey County 2025).

The 2021 Monterey County Multi-Jurisdictional Hazard Mitigation Plan is a collaborative plan to reduce the long-term risk to life and property from both natural and human-caused disasters in Monterey County. It includes a risk assessment, mitigation strategies, and plans for implementation to address hazards like earthquakes, flooding, and wildfires, aiming to protect the community and minimize future damages

3.20.2 ENVIRONMENTAL ASSESSMENT

a, b, c, d) The project is located within unincorporated Monterey County and would operate under the jurisdiction of the Monterey County's Master Emergency Operations Plan, and the Monterey County Multi-Jurisdictional Hazardous Mitigation Plan. The project is located on existing well pads with minimal vegetation within a developed oil field. There would be no permanent or long-term occupants on the project area to be exposed to potential wildfire risks.

The new equipment and infrastructure of the project would be within an existing disturbance area, constructed in compliance with existing

regulations and requirements governing fire safety (such as standards from the National Fire Protection Association and the California Fire Code) (**RR-HAZ-3**), and would not exacerbate fire risk. The project activities would be consistent with the existing conditions of the project area and surrounding areas and would not substantially expand the level of activity at the San Ardo Oil Field. All existing driveways and points of access for emergency access would be maintained throughout the duration of the project. Project personnel would cooperate with the Monterey County Fire Department and other emergency services to assess emergency evacuation and response routes in case of an emergency or wildfire.

As described in Section 3.1.7, Geology and Soils, the project is not located in an area at risk for landslides or substantial downslope or downstream flooding as a result of runoff, post-fire slope instability, or drainage changes. Discussed further in Section 3.1.10, Hydrology and Water Quality, the project area is not within a FEMA Special Flood Hazard Area and is in an area of minimal flood risk. Due to its characteristics, location and design, the project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire instability, or drainage changes.

In addition, the project area is located within the SRA in an area zoned as High FHSZ. The project would comply with the Monterey County Multi-Jurisdictional Hazardous Mitigation Plan to offset any potential impacts related to fire hazards (**DF-HAZ-2**). Due to its location outside of a Very High Fire Hazard Zone, the fact that the project would not alter existing uses onsite, and through Aera's implementation of **MM-HAZ-2** and **MM-HAZ-3**, the project would not exacerbate wildfire risks and would not expose people or facilities to increased risk from wildfire. Therefore, impacts regarding wildfire would be ***less than significant***.

3.21 Mandatory Findings of Significance

Issues	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XXI. MANDATORY FINDINGS OF SIGNIFICANCE				
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 or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
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)?	☐	☐	☒	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

a) As described in Section 3.4, Biological Resources, the project area does not contain critical habitat for any federal threatened or endangered species, although a number of special status species have been recorded or otherwise marginal habitat for these species exists in the USGS quadrangle in which the project area is located as well as the surrounding quadrangles. There are no riparian areas, wetlands, trees, or migratory wildlife corridors within the project area, and there are no adopted HCPs or NCCPs for the project area. CalGEM has determined that potential impacts of the Project to special status species would be less than significant with the incorporation of mitigation measures **(MM-BIO-1 through MM-BIO-9)** and that there would be no impact to riparian

areas, wetlands, trees, wildlife corridors or compliance with adopted HCPs or NCCPs. Therefore, the project would not 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, or substantially reduce the number or restrict the range of a rare or endangered plant or animal. Further, as described in Section 3.5, cultural resource surveys conducted within the project area concluded that there were no identified cultural resources within its boundaries. Therefore, the project would have no impact on historical resources. As described in Section 3.18, as a result of a Sacred Lands File search conducted by NAHC and tribal consultation efforts by CalGEM, no known tribal cultural resources have been identified within the project area. Any potential impacts to unknown resources would be reduced to less than significant with the implementation of mitigation measures (**MM-CUL-1/TCR-1 and MM-CUL-2/TCR-2**). Therefore, the project would not eliminate important examples of major periods of California's history or pre-history, nor cause a substantial adverse change to a tribal cultural resource.

The project is consistent with the existing land use, would not result in population growth, nor would it result in a substantial demand for new utility and service systems or long-term increase in air emissions, noise, or traffic. Impacts are considered ***less than significant with mitigation***.

b) Construction of the project would not result in significant impacts to biological resources and geology and soils with implementation of avoidance and minimization measures. No projects located within five miles of the project were identified under the County of Monterey lists of pending projects. Therefore, no known pending projects are anticipated to affect this proposed project. Furthermore, the project would not conflict with the goals, policies, and objectives found within Monterey County's General Plan. The project includes construction within the San Ardo Oil Field and will be surrounded by similar oil and gas land uses.

The project would result in air emissions and GHG emissions that could be considerable when considered with all other cumulative emission sources in the Salinas Valley. However, as described in Section 3.3, Air Quality, CalGEM has determined that impacts of the project on the applicable air quality plan and on cumulatively considerable pollutant increases would be less than significant as they are less than the thresholds and would follow MBARD rules and regulations. With regards to GHG emissions, the project emissions would be in compliance with the AB 32 Scoping Plan and the AB 32 Cap-and-Trade Program, and project GHG emissions are many orders of magnitude lower than the MBARD threshold of significance, which addresses a cumulative impact. Therefore, impacts would be ***less than significant***.

c) The project is located adjacent to an active oil field and would be operated in accordance with all state and county laws and regulations to ensure that operations are protective of human health and the environment. In addition, implementation of all required mitigation measures would ensure that all impacts are less than significant. Project activities are consistent with the operation of an active oil field and would not directly or indirectly cause substantial adverse impacts to human beings. Impacts would be ***less than significant with mitigation***.

Mitigation Monitoring and Reporting Plan (MMRP)

Regulatory Requirement, Design Feature, and/or Mitigation Measure	Mitigation Description	Timing & Method of Verification	Reporting	Responsible Agency
RR-AIR-1	Compliance with MBARD Rule 200 (Authority to Construct and Permit to Operate).	--	--	MBARD
RR-AIR-2	Compliance with MBARD Rule 201 (Sources Not Requiring Permits).	--	--	MBARD
RR-AIR-3	Compliance with MBARD Rule 207 (Review of New or Modified Sources).	--	--	MBARD
RR-AIR-4	Compliance with MBARD Rule 400 (Visible Emissions).	--	--	MBARD
RR-AIR-5	Compliance with MBARD Rule 402 (Nuisances).	--	--	MBARD
RR-AIR-6	Compliance with MBARD Rule 403 (Particulate Matter).	--	--	MBARD
RR-AIR-7	Compliance with MBARD Rule 1000 (Permit Guidelines and Requirements for Sources Emitting Toxic Air Contaminants).	--	--	MBARD
RR-AIR-8	Compliance with MBARD Rule 1003 (Air Toxic Emissions Inventory and Risk Assessments).	--	--	MBARD
RR-AIR-9	Compliance with leak detection and repair (LDAR) practices in accordance with MBARD and CARB regulations.	--	--	MBARD
MM-BIO-1 Pre-Disturbance Survey	A pre-disturbance biological survey will be conducted by a Qualified Biologist within 30 days prior to construction activities. A Qualified	Prior to all construction activities.	Aera must submit survey results to	Monterey County Public

Regulatory Requirement, Design Feature, and/or Mitigation Measure	Mitigation Description	Timing & Method of Verification	Reporting	Responsible Agency
	Biologist is defined as a person with a combination of academic qualifications (minimum of 4 years of university or college education in biological sciences, zoology, wildlife biology, ecology, botany, or environmental science), professional field experience conducting biological surveys, and demonstrated knowledge and skills (i.e., field experience) related to the species and habitats present on the project area and the specific focused or protocol-level surveys conducted. The purpose of the pre-disturbance biological surveys is to confirm the potential presence and/or absence of any protected status species listed as threatened or endangered under the federal Endangered Species Act, threatened or endangered under the California Endangered Species Act, or designated as fully-protected in the California Fish and Game Code, and to confirm the presence and/or absence of any non-protected status sensitive species considered under California Environmental Quality Act. The pre-disturbance biological survey will consist of walking belt transects to accomplish 100% coverage of the project area plus a 200-meter (656-foot) buffer. Additionally, a 1,640-foot buffer will be surveyed specifically for burrowing owl burrows, in accordance with Recommended Non-Disturbance Buffers for Occupied Burrowing Owl Nesting Sites Based on Project Activity Impact Level (CDFW, 2012).	Survey reports, which will include avoidance and minimization measures as applicable.	Monterey County, USFWS and CDFW.	Works, Facilities, and Parks Department; USFWS; CDFW

Regulatory Requirement, Design Feature, and/or Mitigation Measure	Mitigation Description	Timing & Method of Verification	Reporting	Responsible Agency
	All direct and indirect observations of special-status biological resources will be recorded using a handheld GPS and on field forms. Habitat will be evaluated by the Qualified Biologist to determine the potential for biological resource monitoring and/or surveys for species that are seasonal or require focused surveys during specified periods (e.g., special-status plants, blunt-nosed leopard lizard). The pre-disturbance biological survey report will include a map of the proposed project construction boundary, biological survey area, special-status species observations (when observed), areas of potential and/or occupied habitat (if any), areas identified for avoidance, and a list of all applicable mitigation measures that will be implemented for the respective project activity site.			
MM-BIO-2 Monitoring	A qualified biological monitor shall be on-site during all project activities that have the potential to harm or impact special-status wildlife. Project activities that may require a biological monitor include but are not limited to vegetation removal and initial ground disturbance associated with well pad grading. When on-site, the biological monitor shall conduct a biological clearance survey of all work areas prior to the start of daily Project activities. The purpose of the clearance survey is to identify any biological resources (nests,	During all project activities with the potential to harm or impact special status wildlife, and periodically as determined by the Qualified Biologist. On-site monitoring.	Aera must submit monitoring reports to Monterey County, USFWSS, and CDFW.	Monterey County Public Works, Facilities, and Parks Department; USFWS; CDFW

	dens, burrows) within the work areas that may have occurred since the last workday, any wildlife species within the work areas, and to inspect any exclusion areas and make sure they remain intact. In addition, the biological monitor shall monitor all vegetation removal and ground disturbance activities. Once activities that have the potential to harm or impact wildlife have been completed, daily biological monitoring will not be required. This determination will be left up to the discretion of the Qualified Biologist. The Qualified Biologist may conduct periodic inspections of Project activities to ensure measures are being implemented and no sensitive wildlife have moved into the area. Depending on the pre-disturbance biological survey, activities that will likely not require a biological monitor include drilling operations and Project operations. If at any time during Project activities any special-status wildlife species are observed within the Project area, work around the animal's immediate area shall be stopped or work shall be redirected to an area within the Project area that would not impact these species until the animal has left the area of its own volition. Listed animal species will not be handled or relocated and will be allowed to leave the Project area unimpeded. Work would resume once the animal is clear of the work area. In the unlikely event a special-status species is injured or killed by Project-related activities, the biological monitor would stop work and notify Aera and CalGEM and consult with the appropriate agencies to resolve the impact prior to re-starting work in the area. The biological monitor will keep notes of all species observed, compliance concerns if any, and work activities conducted in a daily monitoring log.			

MM-BIO-3 Bird Nest Buffers	Active bird nest(s) will be avoided by establishing a minimum 300-foot non-disturbance buffer for passerine species, a minimum 500-foot non-disturbance buffer for non-listed raptor nest(s), or a minimum 0.5-mile non-disturbance buffer around any federal or state- listed raptor nest(s) until the breeding season has ended. Non-disturbance buffers can be removed when a Qualified Biologist has determined that the birds have fledged, are no longer reliant on the nest or parental care for survival and adult birds are no longer occupying the nest, or the nest is no longer active (e.g., failed). Reduced non-disturbance buffers may be implemented if a Qualified Biologist concludes that work within the buffer area will not be likely to cause disturbance to or abandonment of the nest (e.g., when the disturbance area is concealed from a nest site by topography, when work activities will have a limited duration within the buffer area, or when the species has been known to tolerate higher levels of disturbance). If reduced non-disturbance buffers are implemented, a Qualified Biologist will monitor the active nest(s) before and during construction to establish a baseline for nest behavior and determine whether construction activities are adversely affecting the nest. If a reduced non-disturbance buffer is implemented, full-time biological monitoring of the nest will occur during construction activities. The pre-disturbance monitoring of the nest site will occur on at least two occasions of at least one hour each during anticipated work hours prior to construction to establish a behavioral baseline. If behavioral changes are observed, the work causing that change will cease within the buffer area until the nest has fledged or is determined by the Qualified Biologist to no	Prior to and during all construction activities. Survey reports, which will include avoidance and minimization measures as applicable; on-site monitoring.	Aera must submit survey results to Monterey County, USFWS, and CDFW.	Monterey County Public Works, Facilities, and Parks Department; USFWS; CDFW

	longer be active. The Qualified Biologist shall have the authority to halt or redirect construction activities to protect nesting birds from project activities. Any reduction of buffer areas for State or federal listed species during the nesting season must be authorized by CDFW and/or USFWS.			
MM-BIO-4 WEAP	A Worker Environmental Awareness Program (WEAP) will be presented to all personnel that may access the project area, prior to beginning work on the project area. The WEAP training will be given by trained personnel (e.g., Qualified Biologist or assigned Company Environmental Specialists). WEAP trainings will cover an overview of the laws and regulations governing the protection of biological resources; a description of protected (i.e., FESA/CESA threatened, endangered, candidate, and other special status) species known to occur or with the potential to occur in the project area. The training would include a discussion of the sensitive and protected species and their biology and general behavior, distribution and habitat needs, sensitivity to human activities, and project-specific protective measures. It will also discuss species status and legal protections, define what is habitat and disturbance, and present biological resource protection measures. Materials will be provided to assist workers in recognizing protected and sensitive species. The training will include avoidance and minimization measures to protect biological resources, the identification of environmentally sensitive areas and avoidance buffers, and how to report biological resources if observed on site. The training of personnel would be documented using sign-in sheets.	Prior to all construction activities. WEAP training records.	Aera must submit record of WEAP training to CalGEM.	CalGEM

MM-BIO-5 San Joaquin Kit Fox	If the pre-disturbance biological survey identifies the presence of any Potential, Atypical, Known or Natal San Joaquin kit fox (SJKF) dens, the following measures will be implemented and documented in the pre-disturbance biological survey report. 1. Potential kit fox dens will be clearly identified on project maps, marked in the field, and a 50-foot no work buffer will be demarcated using stakes and flagging or similar materials to prevent inadvertent damage to the potential den. Alternatively, if a potential den cannot feasibly be avoided at such distance, the den may be monitored and blocked or excavated in accordance with the Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox prior to or during Ground Disturbance (USFWS, 2011). All potential dens that will be destroyed by a project activity or ground disturbance will be fully excavated after monitoring conducted by a Qualified Biologist shows that it is not occupied by a listed or otherwise protected species. 2. If kit fox activity or sign is detected at any den including atypical dens (e.g., pipes, culverts), the den location will be identified as a "known" kit fox den in accordance with USFWS guidelines (USFWS, 2011). A minimum 100-foot no work buffer from any disturbance area will be maintained for known dens. 3. During pupping season (January 1 through August 31 or until pups are no longer dependent on adults), a minimum 500-foot no work buffer (distance at which construction noise attenuates to approximately 60 dBA) from any disturbance area will be maintained from occupied natal dens.	Prior to and during all construction activities. Survey reports, which will include avoidance and minimization measures as applicable; on-site monitoring.	Aera must submit survey results to Monterey County, USFWS, and CDFW.	Monterey County Public Works, Facilities, and Parks Department; USFWS; CDFW

	4. No excavation (or other project-related destruction) of a known or natal den will occur without prior written guidance from USFWS. 5. All pipes (greater than 3.5 inches in diameter) used during project activities will be capped. Stored pipes greater than 3.5 inches that cannot be visually inspected to verify that no wildlife is present will need to be monitored by a Qualified Biologist prior to use or movement. All trenches and excavations would be covered or ramped (1:1 slope) prior to prevent wildlife entrapment. 6. If take (as defined in FESA and/or CESA) of SJKF cannot be avoided, Aera shall consult with USFWS and/or CDFW to obtain necessary authorization and shall implement all associated conditions, including any required take avoidance or minimization measures, of such authorization. If den exclusion or destruction is permitted under FESA, a Qualified Biologist will supervise any such activity.			
MM-BIO-6 Burrowing Owl	If the pre-disturbance biological survey identifies the presence of an occupied burrowing owl burrow, the following measures would be implemented and included in the pre-disturbance biological survey report: 1. Occupied burrowing owl burrows will not be disturbed during the burrowing owl nesting season (February 1 through August 31). The non-disturbance buffer distances shown in Table 4 below, in accordance with CDFW (2012), will be maintained between all disturbance areas and burrowing owl nesting sites. Well drilling is considered high disturbance.	Prior to and during all construction activities. Survey reports, which will include avoidance and minimization measures as applicable; on-site monitoring.	Aera must submit survey results to Monterey County, USFWS, and CDFW.	Monterey County Public Works, Facilities, and Parks Department; USFWS; CDFW

Time of Year	Level of Disturbance		
	Low	**Medium**	**High**
April 1 – Aug 15	656 feet	1,640 feet	1,640 feet
Aug 16 – Oct 15	656 feet	656 feet	1,640 feet
Oct 16 – Mar 31	164 feet	328 feet	1,640 feet

Table 4. Recommended Non-Disturbance Buffers for Occupied Burrowing Owl Nesting Sites Based on Project Activity Impact Level (CDFW, 2012).

2. If occupied burrow avoidance is infeasible during the non-breeding season (between September 1 and January 31), a Qualified Biologist shall implement a passive relocation project in accordance with the CDFW (2012) Staff Report on Burrowing Owl Mitigation, which may include installing one-way doors in burrow entrances for 48 hours to ensure the owl(s) have left the burrow, daily monitoring during the passive relocation period, and subsequently collapsing evicted burrows, once unoccupied, to prevent re-occupation. Prior to passive relocation or exclusion efforts, a burrowing owl management plan will be prepared and

	approved by CDFW. Destruction of burrows will occur only pursuant to a CDFW-approved burrowing owl management plan; burrow excavation will be conducted by hand whenever possible. 3. As an alternative to passive relocation, occupied burrows that are identified within 500 feet but outside the area of ground disturbance may be buffered with hay bales, fencing (e.g., sheltering in place), or as directed by the Qualified Biologist in coordination with CDFW, to avoid disturbance of burrows.			
MM-BIO-7 American Badger	If the pre-disturbance biological survey identifies the presence of an occupied American Badger burrow, the following measures would be implemented: 1. Occupied American badger dens (non-maternity dens) will be avoided by establishing a minimum 50-foot non- disturbance buffer. 2. Occupied maternity dens will be avoided by establishing a minimum 200-foot non-disturbance buffer during the pup-rearing season (February 15 through July 1). 3. A Qualified Biologist will establish (e.g., flag) non-disturbance buffer areas, as identified above, and will periodically monitor ground-disturbing activities to ensure no work is encroaching on established buffer areas. 4. Destruction of a maternity den burrow shall only proceed after the maternity den is no longer active and no badgers are present within the burrow. 5. If take (as defined in CESA) of SJKF cannot be avoided, Aera shall consult with CDFW to	Prior to and during all construction activities. Survey reports, which will include avoidance and minimization measures as applicable; on-site monitoring.	Aera must submit survey results to Monterey County, USFWS, and CDFW.	Monterey County Public Works, Facilities, and Parks Department; USFWS; CDFW

	obtain necessary authorization and shall implement all associated conditions, including any required take avoidance or minimization measures, of such authorization. If den exclusion or destruction is permitted under CESA, a Qualified Biologist will supervise any such activity.			
MM-BIO-8 Reptiles	If the pre-disturbance biological survey identifies the presence of San Joaquin coachwhip or any other reptile species of special concern within the project area, the following measures would be implemented: 1. If any San Joaquin coachwhips or any other reptile species of special concern are observed during construction, the identified special-status reptiles will be allowed to move out of the work area on their own or will be removed from the work area and released in adjacent suitable habitat by a Qualified Biologist. The Qualified Biologist will have all appropriate permits in place prior to handling any special-status reptiles or any other wildlife. 2. No monofilament plastic will be used, such as for erosion control. 3. All construction equipment and construction personnel vehicles will be checked prior to moving them, to ensure that no special-status reptile is under equipment/vehicles. If any individuals are detected beneath equipment or vehicles, the equipment or vehicles will be left in place until the individual(s) moves out of harm's way on its own accord, as determined by a Qualified Biologist.	Prior to and during all construction activities. Survey reports, which will include avoidance and minimization measures as applicable; on-site monitoring.	Aera must submit survey results to Monterey County, USFWS, and CDFW.	Monterey County Public Works, Facilities, and Parks Department; USFWS; CDFW
MM-BIO-9 Best Management Practices	The following best management practices (BMP) will be implemented during all construction, operations, and maintenance activities to avoid and minimize potential	During all project activities.	Aera must submit its initial Compliance Monitoring Report to Monterey County, USFWS, and CDFW	Monterey County Public Works, Facilities,

	significant adverse impacts on biological resources: 1. Work area boundaries shall be delineated with flagging, temporary fencing, or other markers deemed warranted by a Qualified Biologist to minimize the potential for off-site impacts associated with potential vehicle straying. The work area shall be restricted to the two previously disturbed well pads and shall not encroach into adjacent grassland. 2. All vehicles will observe a daytime 20 mile-per-hour speed limit in all areas of disturbance and on unpaved roads unless otherwise posted. Off-road traffic outside designated access routes will be prohibited unless specifically authorized by a Qualified Biologist. Speed limit signs will be posted at visible locations at the point of site entry and at regular intervals on all unpaved access roads. A reduced speed limit of 10 miles-per-hour will be posted and observed within 0.25 mile of any reported special-status species observation. A 10-mile-per-hour speed limit will be observed at night. 3. All disturbance activities, except emergency situations or drilling that may require continuous operations, will occur only during daylight hours. Continuous 24-hour drilling activities will use directed lighting, shielding methods, or reduced lumen intensity. All new lighting fixtures for safety and security at facilities would be shielded, oriented downward while avoiding direct illumination toward adjacent grasslands, and on-demand lighting and/or with timers, to avoid unnecessary visual disturbance to wildlife. 4. All food-related trash items and microtrash, such as wrappers, cans, bottles, bottle tops, and food scraps will be disposed of in closed	Compliance Monitoring Report.	within 30 days of project implementation and annually thereafter.	and Parks Department; USFWS; CDFW

	containers and routinely removed from the project area, at intervals of no less than once per week. 5. The construction contractor shall have hazardous materials spill and containment kits kept on-site at all times to be immediately deployed if necessary. All releases of potentially hazardous materials will be contained as close to the source site as possible. The released materials will be cleaned up by the contractor immediately and disposed of properly. If a release of potentially hazardous materials occurs within special-status species habitat, a Qualified Biologist will be contacted immediately, and a Qualified Biologist and/or biological monitor will monitor cleanup and containment. The appropriate regulatory agencies will be notified of the release of potentially hazardous materials and the remedial action taken by the contractor as soon as possible, but not later than 24 hours after the release occurs or is discovered. Within 30 days of completing cleanup activities, a compliance report will be submitted by the Qualified Biologist/biological monitor to the involved regulatory agencies. 6. Firearms and pets shall be prohibited from the project area. 7. Excavations, spoils piles, unpaved access roadways, and parking and staging areas will be subject to dust control. 8. Herbicides application will be in accordance with existing laws and manufacturers' instructions (i.e., pesticide/herbicide labels). All herbicide chemicals used must be registered for use in the U.S. and California and must have a label certifying that the Federal Environmental Protection Agency (EPA) and the California Department of Pesticide			

	Regulation (DPR) have approved the herbicide for use. Herbicides will not be sprayed within 50 feet of known occurrences of any other special-status plant occurrence or federal land. No rodenticides will be used on any project. 9. All open trenches, excavations, and/or holes more than 2 feet deep will be backfilled or covered at the end of each workday with plywood or similar materials to prevent wildlife entrapment. If an excavation or hole is too large to cover, escape ramps will be installed at an incline ratio of no greater than 2:1 at least every 300 feet. All trenches and excavations will be inspected for the presence of wildlife each day prior to the start of work. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. Any animals discovered shall be allowed to escape before construction activities are allowed to resume or removed from the trench or hole by a Qualified Biologist holding the appropriate permits (if required). 10. All straight construction pipes, culverts, or similar structures with a diameter of 3.5-inches or greater that are stored at a construction site overnight will be thoroughly inspected for wildlife before the pipe is subsequently buried, capped, or otherwise used or moved in any way. All bent pipe with a diameter of 3.5-inches or greater that cannot be visually inspected for wildlife with 100 percent certainty will be left in place and monitored by a Qualified Biologist using wildlife cameras and/or tracking material prior to being removed, capped, moved, or buried. If any wildlife is discovered inside a pipe, that section of pipe is not to be moved until the animal vacates the pipe on its own accord.			

	11. To enable SJKF and other wildlife to pass through the project area, any new perimeter fencing installed around project work areas, with the exception of where fencing is required to exclude wildlife from known hazards, will include a 4 to 6-inch opening between the fence and the ground or the fence will be raised 4 to 6 inches above the ground. The bottom of the fence fabric will be knuckled (wrapped back to form a smooth edge), if necessary, to protect wildlife from injury when passing underneath. 12. All vertical tubes used in project construction and chain link fencing poles will be capped to avoid entrapment and death of special-status wildlife and birds. 13. Discovery of State or federally listed species that are injured or dead will be reported immediately via telephone and within 24 hours in writing to CDFW and USFWS as relevant. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information, such as the cause of injury or death (if known). 14. All activity will use previously disturbed areas to the maximum extent feasible to minimize the amount of new disturbance in areas with existing natural lands. 15. Vehicle, equipment, and material storage will be limited to previously disturbed areas or predefined storage/laydown areas that are incorporated into work site limits. All concrete and asphalt debris will be removed from the project area to either a designated concrete or asphalt storage facility, or off site for recycling or proper disposal on completion of construction.			

	16. No vehicles or construction equipment will be parked within a water of the State, including any dry wash or drainage, nor shall vehicles or construction equipment cross, or travel within a water of the State, including any wash or drainage, where and when water is flowing. No materials will be stored within a Water of the State. 17. All construction equipment and construction personnel vehicles will be checked underneath prior to moving them, to ensure that no wildlife is under equipment/vehicles. If any individuals are detected beneath equipment or vehicles, the equipment or vehicles will be left in place until the wildlife moves out of harm's way on its own accord, as determined by a Qualified Biologist. 18. All tracked vehicles and other construction equipment entering the project area from outside of Monterey and/or San Luis Obispo County will be washed or maintained to be weed-free. 19. All washing of trucks, paint, equipment, or similar activities including concrete washout will occur in designated areas/facilities where runoff is fully contained for collection prior to off-site disposal. Wash water may not be discharged from the project area, must be stored in a manner that excludes sensitive wildlife species, and located at least 100 feet from any water of the State.			
MM-CUL-1/TCR-1 Discovery of Previously Unknown Cultural or	In the event any potential tribal cultural resources, archaeological resources/materials, other cultural resources, or articulated or disarticulated human remains are discovered during ground disturbance or construction activities, Aera shall cease any ground disturbing and construction activities within 50 feet of the find, or an agreed upon distance	During all construction activities; upon discovery of previously unknown cultural or tribal cultural resources.	Aera must submit the unanticipated discovery plan to CalGEM for review and approval.	CalGEM

Tribal Cultural Resources	based on the project area and nature of the find. Work stoppage shall remain in place until the qualified archaeologist, or other designated on-site specialist, determines the nature of the discovery, and evaluates the significance of the discovery and recommends appropriate treatment measures. Per CEQA Guidelines section 15126.4(b)(3), project redesign and preservation in place shall be the preferred means to avoid impacts to significant historical resources. If it is demonstrated that resources cannot be avoided, the qualified archaeologist shall develop additional treatment measures in consultation with CalGEM, which may include data recovery or other appropriate measures. CalGEM will consult with appropriate Native American representatives in determining appropriate treatment for unearthed cultural resources if the resources are prehistoric or Native American in nature. Tribal cultural resources shall not be photographed nor be subjected to any studies beyond such inspection as may be necessary to determine the nature and significance of the discovery. If the discovery is confirmed as potentially significant or a tribal cultural resource, an Environmentally Sensitive Area (ESA) will be established using fencing or other suitable material to protect the discovery during subsequent investigation. No ground-disturbing activities will be permitted within the ESA until the area has been cleared for construction. The exact location of the resources within the ESA must be kept confidential and measures shall be taken to secure the area from site disturbance and potential vandalism. If after consultation it is deemed appropriate, archaeological materials recovered during any investigation shall be curated at an	Unanticipated discovery plan; report prepared by a qualified archaeologist documenting evaluation and/or additional treatment of the resource as applicable; on-site monitoring.	The report prepared by a qualified archaeologist documenting evaluation and/or additional treatment of the resource must be provided to CalGEM and the Northwest Information Center.	

	accredited curation facility. The qualified archaeologist shall prepare a report documenting evaluation and/or additional treatment of the resource. A copy of the report shall be provided to CalGEM and the Northwest Information Center.			
MM-CUL-2/TCR-2 Cultural and Tribal Cultural Resources Monitoring	In addition to the procedures required by MM-CUL-1/TCR-1 and MM-CUL-3/TCR-3, at the discretion of CalGEM and the designated representatives from any consulting Tribe(s), Aera shall provide cultural and tribal cultural resources monitoring during all construction activities for the project. Monitors may include cultural or tribal resource specialists and representatives from area Native American Tribes. Prior to engaging in monitoring, monitors must be provided the training required by MM-HAZ-1. Monitors will also participate in daily project tailgate safety meetings. The monitors shall have the authority to temporarily halt or redirect construction in the event that potentially significant cultural resources or tribal cultural resources are discovered during project-related activities. The work stoppage or redirection shall occur to an extent sufficient to ensure that the resource is protected from further impacts. Aera shall provide a minimum two-week notice to CalGEM and the designated representatives from the consulting Tribe(s) prior to all activities requiring monitoring and shall provide safe and reasonable access to the project area. The monitor(s) shall work in collaboration with Aera.	Prior to and during all construction activities. On-site monitors.	On-site monitor reports.	CalGEM
MM-CUL-3/TCR-3 Unanticipated Discovery of Human Remains	If human remains or associated grave goods (e.g., non-human funerary objects, artifacts, animals, ash or other remnants of burning ceremonies) are uncovered during project construction, Aera shall immediately halt all ground disturbing work within 50 feet of the discovery or other agreed upon distance based on the project area and nature of the	During all construction activities; upon unanticipated discovery of human remains. On-site monitoring.	Aera must report any unanticipated discovery to Monterey County Coroner and Monterey County Public Works, Facilities, and Parks Department	CalGEM; Monterey County Coroner and Monterey County Public

	find; treat the remains with respect and dignity; contact the Monterey County Coroner within 24 hours to evaluate the remains; and follow the procedures and protocols set forth in CEQA Guidelines Section 15064.5(e)(1), California Health and Safety Code Section 7050.5 and California Public Resources Code Section 5097.8. The Monterey County Public Works, Facilities and Parks Department shall be notified concurrently. If the County Coroner determines the remains to be of Native American origin, the County Coroner shall contact the Native American Heritage Commission within 24 hours of this determination, in accordance with Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code 5097.98 (as amended by Assembly Bill (AB) 2641). The Native American Heritage Commission shall designate a Most Likely Descendant for the remains per Public Resources Code 5097.98. Per Public Resources Code 5097.98, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred with the most likely descendant regarding their recommendations, if applicable, taking into account the possibility of multiple humans remains. If the remains are determined to be neither of forensic value to the coroner, nor of Native American origin, provisions of the California Health and Safety Code (7100 et. seq.) directing identification of the next-of-kin will apply. Unless otherwise required by law, the site of any reburial of Native American human		within 24 hours of the find. If the County Coroner determines the remains to be of Native American origin, the County Coroner shall contact the Native American Heritage Commission within 24 hours of this determination.	Works, Facilities, and Parks Department; Native American Heritage Commission

	remains shall not be disclosed and will not be governed by public disclosure requirements of the California Public Records Act (Cal. Govt. Code § 6250 et seq.).			
DF-EN-1	The project includes several energy and fuel-efficient design features.	--	--	CalGEM; Monterey County Public Works, Facilities, and Parks Department
MM-EN-1 Energy Conservation	1. All construction equipment shall be maintained and properly tuned in accordance with the manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. 2. Portable equipment shall be powered by electricity if available. If electricity is not available, propane or natural gas shall be used if feasible. Diesel engines shall only be used if electricity is not available, and it is not feasible to use propane or natural gas.	During all construction activities. Compliance Monitoring Report; on-site monitoring	Compliance Monitoring Report must be submitted to MBARD.	MBARD
RR-EN-1	Compliance with CARB anti-idling and emissions requirements specified in 13 C.C.R. § 2485.	--	--	MBARD
RR-EN-2	Compliance with CARB Off-Road Diesel Regulations as required by 23 C.C.R. § 2449.	--	--	MBARD
RR-GEO-1	Compliance with most recently adopted building codes.	--	--	Monterey County Building Services Department
RR-GHG-1	Compliance with Measure I-2 of the AB 32 Scoping Plan.	--	--	MBARD

RR-GHG-2	Compliance with the AB 32 Cap-and-Trade Program.	--	--	MBARD
RR-GHG-3	Compliance with federal New Source Performance Standards specified in 40 CFR Part 60.	--	--	MBARD
RR-GHG-4	Compliance with California's Oil and Gas Regulation.	--	--	MBARD
RR-GHG-5	Compliance with California Emission Standards for Off-road Compression-Ignition Engines as specified in 13 C.C.R. § 2423(b)(1).	--	--	MBARD
DF-HAZ-1	The project will implement existing procedures to avoid and mitigate fire-related impacts.	--	--	Monterey County Fire Department
DF-HAZ-2	The project would comply with the Monterey County Multi-Jurisdictional Hazardous Mitigation Plan.	--	--	Monterey County Fire Department
MM-HAZ-1 WEAP BMP Training	Aera's WEAP shall include all training requirements identified as Best Management Practices (BMPs) and include annual training for all field personnel (including employees, agents, and contractors). The WEAP shall include hazardous materials and hazardous waste management, and emergency preparedness, release reporting, and response requirements. The WEAP shall also include training regarding the recognition and protection of possible buried paleontological resources during construction, prior to the initiation of construction or ground-disturbing activities. Training shall inform construction personnel of the procedures to be followed upon the discovery of paleontological materials. These procedures include notification of a paleontological monitor upon an accidental discovery and cessation of all work at the site of discovery until written approval to proceed is provided by the	Prior to all construction activities. WEAP training records	Aera must submit record of WEAP training to CalGEM.	CalGEM

	monitor. All personnel shall be instructed that unauthorized collection or disturbance of fossils and artifacts is unlawful.			
MM-HAZ-2 Fire Prevention	Aera shall implement the following measures: 1. Maintain firefighting apparatus and supplies required by the Monterey County Fire Department. 2. Maintain a list of all relevant fire-fighting authorities for each work site. 3. Have available equipment to extinguish incipient fires and or construction of a fire break, such as: chemical fire extinguishers, shovels, axes, chain saws, etc. 4. Carry water or fire extinguishers and shovels in non-passenger vehicles in the field. 5. Have and maintain an adequate supply of fire extinguishers for welding, grinding, and brushing crews. 6. Protect individual safety to contain any fire that occurs and notify local emergency response personnel. 7. Remove any flammable wastes generated during oil and gas activities regularly. 8. Store all flammable materials used in oil and gas activities away from ignition sources and in approved containers. 9. Allow smoking only in designated smoking areas. 10. Prohibit smoking where flammable products are present and when the fire hazard is high. Train personnel regarding potential fire hazards and their prevention. 11. All internal combustion engines, stationary and mobile, shall be equipped with spark arresters. Spark arresters shall be in good working order.	During all construction activities. Compliance Monitoring Report; on-site monitoring.	Initial Compliance Monitoring Report must be submitted to Monterey County within 30 days of project implementation and annually thereafter.	Monterey County Fire Department

	12. Light trucks and cars with factory-installed (type) mufflers shall be used only on roads where the roadway is cleared of vegetation. Said vehicle types shall maintain their factory-installed (type) muffler in good condition. 13. Fire rules shall be posted on the project bulletin board at the contractor's field office and areas visible to employees. 14. Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials. 15. Personnel shall be trained in the practices of the Fire Safety Plan relevant to their duties. Construction and maintenance personnel shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats.			
MM-HAZ-3Hot Work Equipment	Aera shall restrict the use of chainsaws, chippers, vegetation masticators, grinders, tractors, torches, and explosives at its locations, and ensure the sites where this equipment is used are equipped with portable or fixed fire extinguishers and/or a water tank, with hoses, fire rakes, and other tools to extinguish and or control incipient stage fires. The WEAP shall include fire prevention and response training for workers using these tools.	During all construction activities. Compliance Monitoring Report; on-site monitoring.	Initial Compliance Monitoring Report must be submitted to Monterey County within 30 days of project implementation and annually thereafter.	Monterey County Fire Department
RR-HAZ-1	Compliance with provisions added by Senate Bill 4, as well as implement regulations including 14 C.C.R. § 1761.	--	--	CalGEM
RR-HAZ-2	Compliance with 14 C.C.R. § 1774.2, which requires a Pipeline Management Plan.	--	--	CalGEM
RR-HAZ-3	Compliance with 14 C.C.R. § 1722.9, which requires a Spill Prevention Control and Countermeasures Plan, and the Oil Pollution Prevention requirements of the Clean Water Act (40 CFR Part 112).	--	--	CalGEM

RR-HAZ-4	Compliance with applicable regulations and requirements governing fire safety.	--	--	Monterey County Fire Department
DF-HYDRO-1	The project would involve use of existing earthen well pads.	--	--	CalGEM
DF-HYDRO-2	Water for the project would be obtained from existing water source wells and would not conflict with the UPSGSP.	--	--	CCRWQCB
MM-HYDRO-1 Stormwater BMPs	Aera shall implement BMPs during construction and operation activities. All selected practices shall be shown on a drainage implementation plan and self-certified as complete and feasible by a licensed professional qualified in drainage and flood control issues. The following BMPs shall be implemented and shown on the drainage plan: 1. Utilizing established facilities design, and construction or similar standards as applicable appropriate (e.g., ASTM, API). 2. Implementing good housekeeping and maintenance practices. 3. Preventing trash, waste materials and equipment from construction storm water. 4. Maintaining the wellhead, compressors, tanks and pipelines in good condition without leaks or spills. 5. Designing and maintaining a graded pad with berms to not actively erode and discharge sediment. 6. Maintaining vehicles in good working order. 7. Implementing spill prevention and response measures. 8. Utilizing preventative operating practices such as tank level monitoring, safe chemical handling and conducting regular inspections.	During all construction activities. Compliance Monitoring Report.	Initial Compliance Monitoring Report must be submitted to Monterey County within 30 days of project implementation and annually thereafter.	Monterey County Public Works, Facilities, and Parks Department; CCRWQCB

	9. Developing and maintaining a spill response plan. 10. Conducting spill response training for employees and have a process to ensure contractors have the necessary training. 11. Maintaining spill response equipment on site. 12. Implementing material storage and management practices. 13. Preventing unauthorized access. 14. Utilizing "run-on" and "run-off" control berms and swales around all pad areas. 15. Stabilizing exposed slopes through vegetation and other standard slope stability methods.			
RR-HYDRO-1	Compliance with stormwater discharge requirements as specified in 40 C.F.R. §122.26(c)(1)(iii).	--	--	CCRWQCB
RR-HYDRO-2	Aera will obtain coverage under the Construction General Permit (Construction General Permit Order 2009-0009-DWQ, as amended by 2010-00014-DWQ and 2012-0006-DWQ) in advance of construction activity, if required.	--	--	CCRWQCB
Tribal	The Cultural/Tribal resource mitigation measures are listed above.	--	--	--
DF-UTL-1	Waste generated during drilling of the wells would be trucked offsite for disposal in an approved landfill.	--	--	CalGEM
DF-UTL-2	Drilling mud and cuttings and water generated during the construction phase will be transported off-site for disposal at an approved disposal facility.	--	--	CalGEM

References

Applied EarthWorks, Inc. 2011. Cultural Resources Inventory for the San Ardo Oil Field Modernization Project, Monterey County, California. Prepared for Padres Associates, Inc. February 2011.

Bureau of Land Management (BLM). 2016. Potential Fossil Yield Classification System. Available at: https://www.blm.gov/sites/blm.gov/files/uploads/IM2016-124_att1.pdf. Accessed November 24, 2025.

BSK Associates. 2020. Update Geotechnical Engineering Investigation Report, Aera Energy San Ardo Well Pads S20-SA-A,B,D, San Ardo, Monterey County, California. Prepared for Diversified Project Services International. January 30.

California Air Pollution Officers Association. 2025. California Emissions Estimator Model (version 2022.1).

California Air Resources Board. 2005. Air Quality and Land Use Handbook: A Community Health Perspectives. Accessed at: Exhibit G - CARB Air Quality and Land Use Handbook 2005.pdf (cupertino.org). Accessed October 2022.

California Air Resources Board. 2022. Accessed at: https://ww2.arb.ca.gov/sites/default/files/2022-12/2022-sp_1.pdf. Accessed October 2022.

California Department of Conservation (DOC). 2021. California Important Farmland Mapper. Accessed at: https://maps.conservation.ca.gov/dlrp/ciff/. Accessed October 2022.

California Department of Conservation. 2020. California Geological Survey. Information Warehouse: Regulatory Maps. Available at: https://maps.conservation.ca.gov/cgs/informationwarehouse/regulatorymaps/. Accessed December 9, 2020.

California Department of Conservation. 2022. Earthquake Zones of Required Investigation. Available at: https://data.ca.gov/showcase/earthquake-zones-of-required-investigation. Accessed October 2022.

California Department of Fish and Wildlife.2012. Staff Report on Burrowing Owl Mitigation. March 7, 2012.

California Department of Forestry and Fire Protection. 2022. Fire Hazard Severity Zone Viewer. Accessed at: https://egis.fire.ca.gov/FHSZ/. Accessed October 2022.

California Department of Transportation. 2020. Designated and Eligible Scenic Highways. Accessed at: https://dot.ca.gov/-/dot-media/programs/design/documents/desig-and-eligible-aug2019_ally.xlsx. Accessed October 2022.

County of Monterey. 2010. 2010 Monterey County General Plan. Adopted October 26, 2010. Accessed at: https://www.co.monterey.ca.us/government/departments-a-h/housing-community-development/planning-services/current-planning/general-info/2010-monterey-county-general-plan-adopted-october-26-2010.

County of Monterey. County Code of Ordinances. Title 21 – Zoning. Accessed at: Chapter 21.28. REGULATIONS FOR HEAVY INDUSTRIAL ZONING DISTRICTS OR "HI" DISTRICTS, Title 21. ZONING, Code of Ordinances, Monterey County (elaws.us). Accessed October 2022.

Department of Toxic Substances Control (DTSC). 2022. EnviroStor Database. Available at: https://www.envirostor.dtsc.ca.gov/public/. Accessed October 2020.

Dibblee, Thomas W. Jr. 2012. Geologic Map of the Wunpost, California, Quadrangle. Dibblee Geological Foundation Map No. 224.

ERMA. 2023. Web Application: Southwest Environmental Response Management Application, National Oceanic and Atmospheric Administration. Accessed online November 24, 2025, from: https://erma.noaa.gov/southwest

Federal Emergency Management Agency (FEMA). 2022. National Flood Hazard Layer Viewer. Accessed at National Flood Hazard Layer | FEMA.gov. Accessed October 2022.

Federal Transit Administration. 2018. Transit Noise and Vibration Impact Assessment Manual. FTW Report No. 0123.

Monterey Bay Air Resources District. 2005. Particulate Matter Plan. Accessed at: Air Quality Plans - Monterey Bay Air Resources District (mbard.org).

Monterey Bay Air Resources District. 2008. CEQA Air Quality Guidelines. Accessed at: https://www.mbard.org/files/0ce48fe68/CEQA+Guidelines.pdf.

Monterey Bay Air Resources District. 2016. The Guidelines for Implementing the California Environmental Quality Act (2016 Guidelines). Accessed at: mbard.org.

Monterey Bay Air Resources District. 2021. Summary of Facilities Reviewed under AB2588 (September 2021). Accessed at: AB2588Sept2021.pdf (mbard.org).

Monterey County. 2025. Geologic Hazards Map for Monterey County. Accessed at: https://montereyco.maps.arcgis.com/apps/webappviewer/. Accessed November 24, 2025.

Montgomery and Associates. 2022. Salinas Valley Groundwater Basin, Upper Valley Aquifer Subbasin, Groundwater Sustainability Plan. Prepared for the Salinas Valley Basin Groundwater Sustainability Agency. Approved on January 13, 2022.

Natural Resources Conservation Service. 2023. Web Soil Survey. Accessed at: Web Soil Survey (usda.gov). Accessed November 24, 2025.

Salinas Valley Groundwater Sustainability Agency. 2022. Salinas Valley Groundwater Sustainability Plan. Accessed at: Salinas Valley Basin Groundwater Sustainability Agency (svbgsa.org). Accessed December 2022.

Stantec Consulting Services Inc. 2022. Biological Resources Technical Report for San Ardo 2022 Well Drilling Package, San Ardo Oil Field, Monterey County, California. Prepared for Aera Energy LLC. August 19.United States Fish and Wildlife Service. 2011. USFWS Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance. USFWS Sacramento Field Office.

U.S. Fish and Wildlife. Natural Wetlands Inventory. 2022. Accessed at: National Wetlands Inventory | U.S. Fish & Wildlife Service. Accessed 2022.

U.S. Fish and Wildlife. 2011. U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance. Accessed at: https://www.fws.gov/sites/default/files/documents/survey-protocols-for-the-san-joaquin-kit-fox.pdf.

U.S. Geological Survey (USGS). Earthquake Hazards Program Interactive Map. Available at: https://earthquake.usgs.gov/hazards/interactive/. Accessed November 24, 2025.

U.S. Geological Survey (USGS). California Subsidence Areas. Available at: https://ca.water.usgs.gov/land_subsidence/california-subsidence-areas.html. Accessed November 24, 2025.

List of Abbreviations / ACRONYMS

Aera Energy	Aera Energy LLC
CalGEM	California Department of Conservation Geologic Energy Management Division
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CO	Carbon Monoxide
County	County of Monterey
DOC	California Department of Conservation
EIR	Environmental Impact Report
FEMA	Federal Emergency Management Agency
GHG	Greenhouse Gas
HI	Heavy Industrial
ips	Inches Per Second
MBARD	Monterey Bay Air Resources District
MBTA	Migratory Bird Treaty Act
MDBM	Mount Diablo Base and Meridian
MND	Mitigated Negative Declaration
MRZ	Mineral Resource Zone
NOI	Notice of Intent
NOx	Oxides of Nitrogen
PM	Particulate Matter
ROG	Reactive Organic Gas
PPV	Peak Particle Velocity
Project	Aera Energy LLC's San Ardo 2024 Wells Project
PRC	Public Resources Code
Sox	Sulfur oxides
Stantec	Stantec Consulting Services, Inc.
TAC	Toxic Air Contaminants
UIC	Underground Injection Control
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds
WEAP	Worker Environmental Awareness Program

Appendix A – Site Photographs

APPENDIX D – SITE PHOTOGRAPHS

Photo 1: Existing North (supporting proposed wells 103399, 103480, 103474, 103454) and South (supporting proposed wells 103398, 103438, 103416, 103434) Well Pads.

Photo 2: North Well Pad, facing Southwest towards existing producers OR1455-12 (API 0405322631), OR1453-12 (API 0405322630) and field header.

Photo 3: North Well Pad, facing South towards existing producer OR1453-12 (API 0405322630) and field header.

Photo 4: North Well Pad, facing Northwest towards existing producers OR1455-12 (API 0405322631) and OR1453-12 (API 0405322630).

Photo 5: North Well Pad, facing North towards existing producers OR1455-12 (API 0405322631) OR1453-12 (API 0405322630) and field header.

Photo 6: South Well Pad, facing South.

Photo 7: South Well Pad, facing North.

Photo 8: South Well Pad, facing East.

Appendix B – Air Quality

San Ardo - AERA - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

San Ardo - AERA

Monterey Bay Unified APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1.00	1000sqft	0.02	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	53
Climate Zone	4			**Operational Year**	2023
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - No buildings to be constructed

Construction Phase - Construction schedule per well

Off-road Equipment - Equipment list provided

Grading -

Off-road Equipment -

Off-road Equipment - Equipment list provided by the applicant

Vehicle Trips - implementation of the project is to meet existing output, therefore would not generate more trips to the site

Operational Off-Road Equipment - Bore/drill rigs assumed to operate 24/7 at the wells. Operation accounts for all wells. Well workovers occur once a year - two days per year per well. Well workover includes the use of 1 workover rig, 1 MHD truck over a 12 hour day.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	2.00	5.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstructionPhase	NumDays	1.00	2.00
tblConstructionPhase	PhaseEndDate	11/3/2022	11/8/2022
tblConstructionPhase	PhaseEndDate	11/1/2022	11/2/2022
tblLandUse	LandUseSquareFeet	1,000.00	0.00
tblOffRoadEquipment	HorsePower	247.00	207.00
tblOffRoadEquipment	HorsePower	172.00	407.00
tblOffRoadEquipment	HorsePower	402.00	130.00
tblOffRoadEquipment	HorsePower	221.00	515.00
tblOffRoadEquipment	HorsePower	84.00	355.00
tblOffRoadEquipment	HorsePower	84.00	754.00
tblOffRoadEquipment	HorsePower	402.00	450.00
tblOffRoadEquipment	HorsePower	402.00	385.00
tblOffRoadEquipment	HorsePower	402.00	400.00
tblOffRoadEquipment	HorsePower	402.00	425.00
tblOffRoadEquipment	HorsePower	402.00	63.00
tblOffRoadEquipment	HorsePower	89.00	180.00
tblOffRoadEquipment	HorsePower	402.00	400.00
tblOffRoadEquipment	HorsePower	402.00	63.00
tblOffRoadEquipment	HorsePower	124.00	500.00
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.20	0.20
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.44	0.44

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Tractors
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	365.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	16.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	16.00
tblOperationalOffRoadEquipment	OperFuelType	Diesel	Electrical
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	24.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	12.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	12.00
tblOperationalOffRoadEquipment	OperLoadFactor	0.50	0.50
tblOperationalOffRoadEquipment	OperLoadFactor	0.50	0.50

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblOperationalOffRoadEquipment	OperLoadFactor	0.38	0.38
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	8.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblVehicleTrips	ST_TR	1.99	0.00
tblVehicleTrips	SU_TR	5.00	0.00
tblVehicleTrips	WD_TR	4.96	0.00

2.0 Emissions Summary

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0104	0.0838	0.0780	3.7000e-004	2.5600e-003	2.8000e-003	5.3500e-003	1.0900e-003	2.6800e-003	3.7700e-003	0.0000	34.7735	34.7735	5.9200e-003	3.0000e-005	34.9294
Maximum	**0.0104**	**0.0838**	**0.0780**	**3.7000e-004**	**2.5600e-003**	**2.8000e-003**	**5.3500e-003**	**1.0900e-003**	**2.6800e-003**	**3.7700e-003**	**0.0000**	**34.7735**	**34.7735**	**5.9200e-003**	**3.0000e-005**	**34.9294**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0104	0.0838	0.0780	3.7000e-004	2.5600e-003	2.8000e-003	5.3500e-003	1.0900e-003	2.6800e-003	3.7700e-003	0.0000	34.7735	34.7735	5.9200e-003	3.0000e-005	34.9294
Maximum	**0.0104**	**0.0838**	**0.0780**	**3.7000e-004**	**2.5600e-003**	**2.8000e-003**	**5.3500e-003**	**1.0900e-003**	**2.6800e-003**	**3.7700e-003**	**0.0000**	**34.7735**	**34.7735**	**5.9200e-003**	**3.0000e-005**	**34.9294**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	8.6700e-003	0.0676	0.0642	2.7000e-004		2.3500e-003	2.3500e-003		2.1600e-003	2.1600e-003	0.0000	24.0179	24.0179	7.7700e-003	0.0000	24.2121
Waste						0.0000	0.0000		0.0000	0.0000	0.2517	0.0000	0.2517	0.0149	0.0000	0.6236
Water						0.0000	0.0000		0.0000	0.0000	0.0734	0.1158	0.1891	7.5500e-003	1.8000e-004	0.4317
Total	**8.6700e-003**	**0.0676**	**0.0642**	**2.7000e-004**	**0.0000**	**2.3500e-003**	**2.3500e-003**	**0.0000**	**2.1600e-003**	**2.1600e-003**	**0.3251**	**24.1337**	**24.4588**	**0.0302**	**1.8000e-004**	**25.2674**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	8.6700e-003	0.0676	0.0642	2.7000e-004		2.3500e-003	2.3500e-003		2.1600e-003	2.1600e-003	0.0000	24.0179	24.0179	7.7700e-003	0.0000	24.2121
Waste						0.0000	0.0000		0.0000	0.0000	0.2517	0.0000	0.2517	0.0149	0.0000	0.6236
Water						0.0000	0.0000		0.0000	0.0000	0.0734	0.1158	0.1891	7.5500e-003	1.8000e-004	0.4317
Total	**8.6700e-003**	**0.0676**	**0.0642**	**2.7000e-004**	**0.0000**	**2.3500e-003**	**2.3500e-003**	**0.0000**	**2.1600e-003**	**2.1600e-003**	**0.3251**	**24.1337**	**24.4588**	**0.0302**	**1.8000e-004**	**25.2674**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	11/1/2022	11/2/2022	5	2	
2	Drilling	Grading	11/2/2022	11/8/2022	5	5	

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Acres of Grading (Site Preparation Phase): 0.25

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	1	2.00	207	0.40
Site Preparation	Other Construction Equipment	1	2.00	407	0.42
Site Preparation	Off-Highway Trucks	1	5.00	130	0.38
Site Preparation	Graders	0	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Drilling	Graders	0	6.00	187	0.41
Drilling	Bore/Drill Rigs	1	22.00	515	0.50
Drilling	Generator Sets	1	23.00	355	0.74
Drilling	Pumps	1	22.00	754	0.74
Drilling	Off-Highway Trucks	3	1.20	450	0.38
Drilling	Rubber Tired Dozers	0	6.00	247	0.40
Drilling	Off-Highway Trucks	2	0.60	385	0.38
Drilling	Off-Highway Trucks	1	0.10	400	0.38
Drilling	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Drilling	Off-Highway Trucks	2	0.60	425	0.38
Drilling	Off-Highway Trucks	1	0.60	63	0.38
Drilling	Forklifts	1	0.30	180	0.20
Drilling	Off-Highway Trucks	1	0.30	400	0.38
Drilling	Off-Highway Trucks	1	1.20	63	0.38
Drilling	Off-Highway Tractors	2	0.80	500	0.44

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Drilling	17	43.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.6400e-003	0.0000	1.6400e-003	8.4000e-004	0.0000	8.4000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5000e-004	4.3200e-003	3.6200e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.8000e-004	1.8000e-004	0.0000	0.7149	0.7149	2.3000e-004	0.0000	0.7207
Total	**4.5000e-004**	**4.3200e-003**	**3.6200e-003**	**1.0000e-005**	**1.6400e-003**	**1.9000e-004**	**1.8300e-003**	**8.4000e-004**	**1.8000e-004**	**1.0200e-003**	**0.0000**	**0.7149**	**0.7149**	**2.3000e-004**	**0.0000**	**0.7207**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.4000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0545	0.0545	0.0000	0.0000	0.0551
Total	**3.0000e-005**	**2.0000e-005**	**2.4000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0545**	**0.0545**	**0.0000**	**0.0000**	**0.0551**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.6400e-003	0.0000	1.6400e-003	8.4000e-004	0.0000	8.4000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5000e-004	4.3200e-003	3.6200e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.8000e-004	1.8000e-004	0.0000	0.7149	0.7149	2.3000e-004	0.0000	0.7207
Total	**4.5000e-004**	**4.3200e-003**	**3.6200e-003**	**1.0000e-005**	**1.6400e-003**	**1.9000e-004**	**1.8300e-003**	**8.4000e-004**	**1.8000e-004**	**1.0200e-003**	**0.0000**	**0.7149**	**0.7149**	**2.3000e-004**	**0.0000**	**0.7207**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.4000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0545	0.0545	0.0000	0.0000	0.0551
Total	**3.0000e-005**	**2.0000e-005**	**2.4000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0545**	**0.0545**	**0.0000**	**0.0000**	**0.0551**

3.3 Drilling - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.5300e-003	0.0791	0.0709	3.5000e-004		2.6000e-003	2.6000e-003		2.5000e-003	2.5000e-003	0.0000	33.2715	33.2715	5.6600e-003	0.0000	33.4130
Total	**9.5300e-003**	**0.0791**	**0.0709**	**3.5000e-004**	**0.0000**	**2.6000e-003**	**2.6000e-003**	**0.0000**	**2.5000e-003**	**2.5000e-003**	**0.0000**	**33.2715**	**33.2715**	**5.6600e-003**	**0.0000**	**33.4130**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Drilling - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8000e-004	3.1000e-004	3.2900e-003	1.0000e-005	8.6000e-004	1.0000e-005	8.6000e-004	2.3000e-004	1.0000e-005	2.3000e-004	0.0000	0.7326	0.7326	3.0000e-005	2.0000e-005	0.7406
Total	**3.8000e-004**	**3.1000e-004**	**3.2900e-003**	**1.0000e-005**	**8.6000e-004**	**1.0000e-005**	**8.6000e-004**	**2.3000e-004**	**1.0000e-005**	**2.3000e-004**	**0.0000**	**0.7326**	**0.7326**	**3.0000e-005**	**2.0000e-005**	**0.7406**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.5300e-003	0.0791	0.0709	3.5000e-004		2.6000e-003	2.6000e-003		2.5000e-003	2.5000e-003	0.0000	33.2714	33.2714	5.6600e-003	0.0000	33.4130
Total	**9.5300e-003**	**0.0791**	**0.0709**	**3.5000e-004**	**0.0000**	**2.6000e-003**	**2.6000e-003**	**0.0000**	**2.5000e-003**	**2.5000e-003**	**0.0000**	**33.2714**	**33.2714**	**5.6600e-003**	**0.0000**	**33.4130**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Drilling - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8000e-004	3.1000e-004	3.2900e-003	1.0000e-005	8.6000e-004	1.0000e-005	8.6000e-004	2.3000e-004	1.0000e-005	2.3000e-004	0.0000	0.7326	0.7326	3.0000e-005	2.0000e-005	0.7406
Total	**3.8000e-004**	**3.1000e-004**	**3.2900e-003**	**1.0000e-005**	**8.6000e-004**	**1.0000e-005**	**8.6000e-004**	**2.3000e-004**	**1.0000e-005**	**2.3000e-004**	**0.0000**	**0.7326**	**0.7326**	**3.0000e-005**	**2.0000e-005**	**0.7406**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.506503	0.051891	0.195413	0.154205	0.030404	0.007208	0.010263	0.009176	0.001229	0.000594	0.027829	0.001330	0.003956

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Unmitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.1891	7.5500e-003	1.8000e-004	0.4317
Unmitigated	0.1891	7.5500e-003	1.8000e-004	0.4317

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0.23125 / 0	0.1891	7.5500e-003	1.8000e-004	0.4317
Total		**0.1891**	**7.5500e-003**	**1.8000e-004**	**0.4317**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0.23125 / 0	0.1891	7.5500e-003	1.8000e-004	0.4317
Total		**0.1891**	**7.5500e-003**	**1.8000e-004**	**0.4317**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.2517	0.0149	0.0000	0.6236
Unmitigated	0.2517	0.0149	0.0000	0.6236

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	1.24	0.2517	0.0149	0.0000	0.6236
Total		**0.2517**	**0.0149**	**0.0000**	**0.6236**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	1.24	0.2517	0.0149	0.0000	0.6236
Total		**0.2517**	**0.0149**	**0.0000**	**0.6236**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Bore/Drill Rigs	8	24.00	365	221	0.50	Electrical

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Bore/Drill Rigs	1	12.00	16	221	0.50	Diesel
Off-Highway Trucks	1	12.00	16	402	0.38	Diesel

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Bore/Drill Rigs	2.5900e-003	0.0246	0.0245	1.1000e-004		8.0000e-004	8.0000e-004		7.3000e-004	7.3000e-004	0.0000	10.0151	10.0151	3.2400e-003	0.0000	10.0961
Off-Highway Trucks	6.0800e-003	0.0430	0.0397	1.6000e-004		1.5600e-003	1.5600e-003		1.4300e-003	1.4300e-003	0.0000	14.0028	14.0028	4.5300e-003	0.0000	14.1160
Total	**8.6700e-003**	**0.0676**	**0.0642**	**2.7000e-004**		**2.3600e-003**	**2.3600e-003**		**2.1600e-003**	**2.1600e-003**	**0.0000**	**24.0179**	**24.0179**	**7.7700e-003**	**0.0000**	**24.2121**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

San Ardo - AERA

Monterey Bay Unified APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1.00	1000sqft	0.02	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	53
Climate Zone	4			**Operational Year**	2023
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - No buildings to be constructed

Construction Phase - Construction schedule per well

Off-road Equipment - Equipment list provided

Grading -

Off-road Equipment -

Off-road Equipment - Equipment list provided by the applicant

Vehicle Trips - implementation of the project is to meet existing output, therefore would not generate more trips to the site

Operational Off-Road Equipment - Bore/drill rigs assumed to operate 24/7 at the wells. Operation accounts for all wells. Well workovers occur once a year - two days per year per well. Well workover includes the use of 1 workover rig, 1 MHD truck over a 12 hour day.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	2.00	5.00

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tblConstructionPhase	NumDays	1.00	2.00
tblConstructionPhase	PhaseEndDate	11/3/2022	11/8/2022
tblConstructionPhase	PhaseEndDate	11/1/2022	11/2/2022
tblLandUse	LandUseSquareFeet	1,000.00	0.00
tblOffRoadEquipment	HorsePower	247.00	207.00
tblOffRoadEquipment	HorsePower	172.00	407.00
tblOffRoadEquipment	HorsePower	402.00	130.00
tblOffRoadEquipment	HorsePower	221.00	515.00
tblOffRoadEquipment	HorsePower	84.00	355.00
tblOffRoadEquipment	HorsePower	84.00	754.00
tblOffRoadEquipment	HorsePower	402.00	450.00
tblOffRoadEquipment	HorsePower	402.00	385.00
tblOffRoadEquipment	HorsePower	402.00	400.00
tblOffRoadEquipment	HorsePower	402.00	425.00
tblOffRoadEquipment	HorsePower	402.00	63.00
tblOffRoadEquipment	HorsePower	89.00	180.00
tblOffRoadEquipment	HorsePower	402.00	400.00
tblOffRoadEquipment	HorsePower	402.00	63.00
tblOffRoadEquipment	HorsePower	124.00	500.00
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.20	0.20
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.44	0.44

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Tractors
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	365.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	16.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	16.00
tblOperationalOffRoadEquipment	OperFuelType	Diesel	Electrical
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	24.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	12.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	12.00
tblOperationalOffRoadEquipment	OperLoadFactor	0.50	0.50
tblOperationalOffRoadEquipment	OperLoadFactor	0.50	0.50

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblOperationalOffRoadEquipment	OperLoadFactor	0.38	0.38
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	8.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblVehicleTrips	ST_TR	1.99	0.00
tblVehicleTrips	SU_TR	5.00	0.00
tblVehicleTrips	WD_TR	4.96	0.00

2.0 Emissions Summary

San Ardo - AERA - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	4.4418	36.0910	33.6117	0.1521	2.0570	1.2331	3.2902	0.9530	1.1793	2.1323	0.0000	15,861.6427	15,861.6427	2.7650	0.0117	15,934.2675
Maximum	**4.4418**	**36.0910**	**33.6117**	**0.1521**	**2.0570**	**1.2331**	**3.2902**	**0.9530**	**1.1793**	**2.1323**	**0.0000**	**15,861.6427**	**15,861.6427**	**2.7650**	**0.0117**	**15,934.2675**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	4.4418	36.0910	33.6117	0.1521	2.0570	1.2331	3.2902	0.9530	1.1793	2.1323	0.0000	15,861.6427	15,861.6427	2.7650	0.0117	15,934.2675
Maximum	**4.4418**	**36.0910**	**33.6117**	**0.1521**	**2.0570**	**1.2331**	**3.2902**	**0.9530**	**1.1793**	**2.1323**	**0.0000**	**15,861.6427**	**15,861.6427**	**2.7650**	**0.0117**	**15,934.2675**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

San Ardo - AERA - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	1.0839	8.4533	8.0220	0.0342		0.2940	0.2940		0.2705	0.2705	0.0000	3,309.4023	3,309.4023	1.0703		3,336.1605
Total	**1.0839**	**8.4533**	**8.0221**	**0.0342**	**0.0000**	**0.2940**	**0.2940**	**0.0000**	**0.2705**	**0.2705**	**0.0000**	**3,309.4025**	**3,309.4025**	**1.0703**	**0.0000**	**3,336.1607**

San Ardo - AERA - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	1.0839	8.4533	8.0220	0.0342		0.2940	0.2940		0.2705	0.2705	0.0000	3,309.4023	3,309.4023	1.0703		3,336.1605
Total	**1.0839**	**8.4533**	**8.0221**	**0.0342**	**0.0000**	**0.2940**	**0.2940**	**0.0000**	**0.2705**	**0.2705**	**0.0000**	**3,309.4025**	**3,309.4025**	**1.0703**	**0.0000**	**3,336.1607**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	11/1/2022	11/2/2022	5	2	
2	Drilling	Grading	11/2/2022	11/8/2022	5	5	

Acres of Grading (Site Preparation Phase): 0.25

San Ardo - AERA - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	1	2.00	207	0.40
Site Preparation	Other Construction Equipment	1	2.00	407	0.42
Site Preparation	Off-Highway Trucks	1	5.00	130	0.38
Site Preparation	Graders	0	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Drilling	Graders	0	6.00	187	0.41
Drilling	Bore/Drill Rigs	1	22.00	515	0.50
Drilling	Generator Sets	1	23.00	355	0.74
Drilling	Pumps	1	22.00	754	0.74
Drilling	Off-Highway Trucks	3	1.20	450	0.38
Drilling	Rubber Tired Dozers	0	6.00	247	0.40
Drilling	Off-Highway Trucks	2	0.60	385	0.38
Drilling	Off-Highway Trucks	1	0.10	400	0.38
Drilling	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Drilling	Off-Highway Trucks	2	0.60	425	0.38
Drilling	Off-Highway Trucks	1	0.60	63	0.38
Drilling	Forklifts	1	0.30	180	0.20
Drilling	Off-Highway Trucks	1	0.30	400	0.38
Drilling	Off-Highway Trucks	1	1.20	63	0.38
Drilling	Off-Highway Tractors	2	0.80	500	0.44

Trips and VMT

San Ardo - AERA - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Drilling	17	43.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.6381	0.0000	1.6381	0.8419	0.0000	0.8419			0.0000			0.0000
Off-Road	0.4482	4.3174	3.6227	8.1400e-003		0.1912	0.1912		0.1759	0.1759		788.0767	788.0767	0.2549		794.4487
Total	**0.4482**	**4.3174**	**3.6227**	**8.1400e-003**	**1.6381**	**0.1912**	**1.8292**	**0.8419**	**0.1759**	**1.0177**		**788.0767**	**788.0767**	**0.2549**		**794.4487**

San Ardo - AERA - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0286	0.0199	0.2575	6.3000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		63.2720	63.2720	2.1900e-003	1.8400e-003	63.8758
Total	**0.0286**	**0.0199**	**0.2575**	**6.3000e-004**	**0.0657**	**4.4000e-004**	**0.0662**	**0.0174**	**4.1000e-004**	**0.0178**		**63.2720**	**63.2720**	**2.1900e-003**	**1.8400e-003**	**63.8758**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.6381	0.0000	1.6381	0.8419	0.0000	0.8419			0.0000			0.0000
Off-Road	0.4482	4.3174	3.6227	8.1400e-003		0.1912	0.1912		0.1759	0.1759	0.0000	788.0767	788.0767	0.2549		794.4487
Total	**0.4482**	**4.3174**	**3.6227**	**8.1400e-003**	**1.6381**	**0.1912**	**1.8292**	**0.8419**	**0.1759**	**1.0177**	**0.0000**	**788.0767**	**788.0767**	**0.2549**		**794.4487**

San Ardo - AERA - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0286	0.0199	0.2575	6.3000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		63.2720	63.2720	2.1900e-003	1.8400e-003	63.8758
Total	**0.0286**	**0.0199**	**0.2575**	**6.3000e-004**	**0.0657**	**4.4000e-004**	**0.0662**	**0.0174**	**4.1000e-004**	**0.0178**		**63.2720**	**63.2720**	**2.1900e-003**	**1.8400e-003**	**63.8758**

3.3 Drilling - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	3.8113	31.6464	28.3476	0.1400		1.0392	1.0392		1.0008	1.0008		14,670.2073	14,670.2073	2.4961		14,732.6108
Total	**3.8113**	**31.6464**	**28.3476**	**0.1400**	**0.0000**	**1.0392**	**1.0392**	**0.0000**	**1.0008**	**1.0008**		**14,670.2073**	**14,670.2073**	**2.4961**		**14,732.6108**

San Ardo - AERA - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Drilling - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1537	0.1072	1.3839	3.3600e-003	0.3532	2.3600e-003	0.3556	0.0937	2.1800e-003	0.0959		340.0868	340.0868	0.0118	9.9000e-003	343.3323
Total	**0.1537**	**0.1072**	**1.3839**	**3.3600e-003**	**0.3532**	**2.3600e-003**	**0.3556**	**0.0937**	**2.1800e-003**	**0.0959**		**340.0868**	**340.0868**	**0.0118**	**9.9000e-003**	**343.3323**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	3.8113	31.6464	28.3476	0.1400		1.0392	1.0392		1.0008	1.0008	0.0000	14,670.2073	14,670.2073	2.4961		14,732.6108
Total	**3.8113**	**31.6464**	**28.3476**	**0.1400**	**0.0000**	**1.0392**	**1.0392**	**0.0000**	**1.0008**	**1.0008**	**0.0000**	**14,670.2073**	**14,670.2073**	**2.4961**		**14,732.6108**

San Ardo - AERA - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Drilling - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1537	0.1072	1.3839	3.3600e-003	0.3532	2.3600e-003	0.3556	0.0937	2.1800e-003	0.0959		340.0868	340.0868	0.0118	9.9000e-003	343.3323
Total	**0.1537**	**0.1072**	**1.3839**	**3.3600e-003**	**0.3532**	**2.3600e-003**	**0.3556**	**0.0937**	**2.1800e-003**	**0.0959**		**340.0868**	**340.0868**	**0.0118**	**9.9000e-003**	**343.3323**

San Ardo - AERA - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.506503	0.051891	0.195413	0.154205	0.030404	0.007208	0.010263	0.009176	0.001229	0.000594	0.027829	0.001330	0.003956

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

San Ardo - AERA - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Bore/Drill Rigs	8	24.00	365	221	0.50	Electrical
Bore/Drill Rigs	1	12.00	16	221	0.50	Diesel
Off-Highway Trucks	1	12.00	16	402	0.38	Diesel

San Ardo - AERA - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Bore/Drill Rigs	0.3243	3.0747	3.0646	0.0143		0.0995	0.0995		0.0916	0.0916	0.0000	1,379.9704	1,379.9704	0.4463		1,391.1282
Off-Highway Trucks	0.7596	5.3786	4.9574	0.0199		0.1945	0.1945		0.1789	0.1789	0.0000	1,929.4319	1,929.4319	0.6240		1,945.0324
Total	**1.0839**	**8.4533**	**8.0220**	**0.0342**		**0.2940**	**0.2940**		**0.2705**	**0.2705**	**0.0000**	**3,309.4023**	**3,309.4023**	**1.0703**		**3,336.1605**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

San Ardo - AERA

Monterey Bay Unified APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1.00	1000sqft	0.02	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	53
Climate Zone	4			**Operational Year**	2023
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - No buildings to be constructed

Construction Phase - Construction schedule per well

Off-road Equipment - Equipment list provided

Grading -

Off-road Equipment -

Off-road Equipment - Equipment list provided by the applicant

Vehicle Trips - implementation of the project is to meet existing output, therefore would not generate more trips to the site

Operational Off-Road Equipment - Bore/drill rigs assumed to operate 24/7 at the wells. Operation accounts for all wells. Well workovers occur once a year - two days per year per well. Well workover includes the use of 1 workover rig, 1 MHD truck over a 12 hour day.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	2.00	5.00

San Ardo - AERA - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstructionPhase	NumDays	1.00	2.00
tblConstructionPhase	PhaseEndDate	11/3/2022	11/8/2022
tblConstructionPhase	PhaseEndDate	11/1/2022	11/2/2022
tblLandUse	LandUseSquareFeet	1,000.00	0.00
tblOffRoadEquipment	HorsePower	247.00	207.00
tblOffRoadEquipment	HorsePower	172.00	407.00
tblOffRoadEquipment	HorsePower	402.00	130.00
tblOffRoadEquipment	HorsePower	221.00	515.00
tblOffRoadEquipment	HorsePower	84.00	355.00
tblOffRoadEquipment	HorsePower	84.00	754.00
tblOffRoadEquipment	HorsePower	402.00	450.00
tblOffRoadEquipment	HorsePower	402.00	385.00
tblOffRoadEquipment	HorsePower	402.00	400.00
tblOffRoadEquipment	HorsePower	402.00	425.00
tblOffRoadEquipment	HorsePower	402.00	63.00
tblOffRoadEquipment	HorsePower	89.00	180.00
tblOffRoadEquipment	HorsePower	402.00	400.00
tblOffRoadEquipment	HorsePower	402.00	63.00
tblOffRoadEquipment	HorsePower	124.00	500.00
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.20	0.20
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.44	0.44

San Ardo - AERA - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Tractors
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	365.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	16.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	16.00
tblOperationalOffRoadEquipment	OperFuelType	Diesel	Electrical
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	24.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	12.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	12.00
tblOperationalOffRoadEquipment	OperLoadFactor	0.50	0.50
tblOperationalOffRoadEquipment	OperLoadFactor	0.50	0.50

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblOperationalOffRoadEquipment	OperLoadFactor	0.38	0.38
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	8.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblVehicleTrips	ST_TR	1.99	0.00
tblVehicleTrips	SU_TR	5.00	0.00
tblVehicleTrips	WD_TR	4.96	0.00

2.0 Emissions Summary

San Ardo - AERA - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	4.4529	36.1229	33.5896	0.1519	2.0570	1.2331	3.2902	0.9530	1.1793	2.1323	0.0000	15,839.9585	15,839.9585	2.7667	0.0137	15,913.1987
Maximum	**4.4529**	**36.1229**	**33.5896**	**0.1519**	**2.0570**	**1.2331**	**3.2902**	**0.9530**	**1.1793**	**2.1323**	**0.0000**	**15,839.9585**	**15,839.9585**	**2.7667**	**0.0137**	**15,913.1987**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	4.4529	36.1229	33.5896	0.1519	2.0570	1.2331	3.2902	0.9530	1.1793	2.1323	0.0000	15,839.9585	15,839.9585	2.7667	0.0137	15,913.1987
Maximum	**4.4529**	**36.1229**	**33.5896**	**0.1519**	**2.0570**	**1.2331**	**3.2902**	**0.9530**	**1.1793**	**2.1323**	**0.0000**	**15,839.9585**	**15,839.9585**	**2.7667**	**0.0137**	**15,913.1987**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

San Ardo - AERA - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	1.0839	8.4533	8.0220	0.0342		0.2940	0.2940		0.2705	0.2705	0.0000	3,309.4023	3,309.4023	1.0703		3,336.1605
Total	**1.0839**	**8.4533**	**8.0221**	**0.0342**	**0.0000**	**0.2940**	**0.2940**	**0.0000**	**0.2705**	**0.2705**	**0.0000**	**3,309.4025**	**3,309.4025**	**1.0703**	**0.0000**	**3,336.1607**

San Ardo - AERA - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	1.0839	8.4533	8.0220	0.0342		0.2940	0.2940		0.2705	0.2705	0.0000	3,309.4023	3,309.4023	1.0703		3,336.1605
Total	**1.0839**	**8.4533**	**8.0221**	**0.0342**	**0.0000**	**0.2940**	**0.2940**	**0.0000**	**0.2705**	**0.2705**	**0.0000**	**3,309.4025**	**3,309.4025**	**1.0703**	**0.0000**	**3,336.1607**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	11/1/2022	11/2/2022	5	2	
2	Drilling	Grading	11/2/2022	11/8/2022	5	5	

Acres of Grading (Site Preparation Phase): 0.25

San Ardo - AERA - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	1	2.00	207	0.40
Site Preparation	Other Construction Equipment	1	2.00	407	0.42
Site Preparation	Off-Highway Trucks	1	5.00	130	0.38
Site Preparation	Graders	0	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Drilling	Graders	0	6.00	187	0.41
Drilling	Bore/Drill Rigs	1	22.00	515	0.50
Drilling	Generator Sets	1	23.00	355	0.74
Drilling	Pumps	1	22.00	754	0.74
Drilling	Off-Highway Trucks	3	1.20	450	0.38
Drilling	Rubber Tired Dozers	0	6.00	247	0.40
Drilling	Off-Highway Trucks	2	0.60	385	0.38
Drilling	Off-Highway Trucks	1	0.10	400	0.38
Drilling	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Drilling	Off-Highway Trucks	2	0.60	425	0.38
Drilling	Off-Highway Trucks	1	0.60	63	0.38
Drilling	Forklifts	1	0.30	180	0.20
Drilling	Off-Highway Trucks	1	0.30	400	0.38
Drilling	Off-Highway Trucks	1	1.20	63	0.38
Drilling	Off-Highway Tractors	2	0.80	500	0.44

Trips and VMT

San Ardo - AERA - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Drilling	17	43.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.6381	0.0000	1.6381	0.8419	0.0000	0.8419			0.0000			0.0000
Off-Road	0.4482	4.3174	3.6227	8.1400e-003		0.1912	0.1912		0.1759	0.1759		788.0767	788.0767	0.2549		794.4487
Total	**0.4482**	**4.3174**	**3.6227**	**8.1400e-003**	**1.6381**	**0.1912**	**1.8292**	**0.8419**	**0.1759**	**1.0177**		**788.0767**	**788.0767**	**0.2549**		**794.4487**

San Ardo - AERA - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0303	0.0250	0.2540	5.9000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		59.8705	59.8705	2.4500e-003	2.1400e-003	60.5709
Total	**0.0303**	**0.0250**	**0.2540**	**5.9000e-004**	**0.0657**	**4.4000e-004**	**0.0662**	**0.0174**	**4.1000e-004**	**0.0178**		**59.8705**	**59.8705**	**2.4500e-003**	**2.1400e-003**	**60.5709**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.6381	0.0000	1.6381	0.8419	0.0000	0.8419			0.0000			0.0000
Off-Road	0.4482	4.3174	3.6227	8.1400e-003		0.1912	0.1912		0.1759	0.1759	0.0000	788.0767	788.0767	0.2549		794.4487
Total	**0.4482**	**4.3174**	**3.6227**	**8.1400e-003**	**1.6381**	**0.1912**	**1.8292**	**0.8419**	**0.1759**	**1.0177**	**0.0000**	**788.0767**	**788.0767**	**0.2549**		**794.4487**

San Ardo - AERA - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0303	0.0250	0.2540	5.9000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		59.8705	59.8705	2.4500e-003	2.1400e-003	60.5709
Total	**0.0303**	**0.0250**	**0.2540**	**5.9000e-004**	**0.0657**	**4.4000e-004**	**0.0662**	**0.0174**	**4.1000e-004**	**0.0178**		**59.8705**	**59.8705**	**2.4500e-003**	**2.1400e-003**	**60.5709**

3.3 Drilling - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	3.8113	31.6464	28.3476	0.1400		1.0392	1.0392		1.0008	1.0008		14,670.2073	14,670.2073	2.4961		14,732.6108
Total	**3.8113**	**31.6464**	**28.3476**	**0.1400**	**0.0000**	**1.0392**	**1.0392**	**0.0000**	**1.0008**	**1.0008**		**14,670.2073**	**14,670.2073**	**2.4961**		**14,732.6108**

San Ardo - AERA - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Drilling - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1630	0.1341	1.3653	3.1800e-003	0.3532	2.3600e-003	0.3556	0.0937	2.1800e-003	0.0959		321.8041	321.8041	0.0132	0.0115	325.5684
Total	**0.1630**	**0.1341**	**1.3653**	**3.1800e-003**	**0.3532**	**2.3600e-003**	**0.3556**	**0.0937**	**2.1800e-003**	**0.0959**		**321.8041**	**321.8041**	**0.0132**	**0.0115**	**325.5684**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	3.8113	31.6464	28.3476	0.1400		1.0392	1.0392		1.0008	1.0008	0.0000	14,670.2073	14,670.2073	2.4961		14,732.6108
Total	**3.8113**	**31.6464**	**28.3476**	**0.1400**	**0.0000**	**1.0392**	**1.0392**	**0.0000**	**1.0008**	**1.0008**	**0.0000**	**14,670.2073**	**14,670.2073**	**2.4961**		**14,732.6108**

San Ardo - AERA - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Drilling - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1630	0.1341	1.3653	3.1800e-003	0.3532	2.3600e-003	0.3556	0.0937	2.1800e-003	0.0959		321.8041	321.8041	0.0132	0.0115	325.5684
Total	**0.1630**	**0.1341**	**1.3653**	**3.1800e-003**	**0.3532**	**2.3600e-003**	**0.3556**	**0.0937**	**2.1800e-003**	**0.0959**		**321.8041**	**321.8041**	**0.0132**	**0.0115**	**325.5684**

San Ardo - AERA - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.506503	0.051891	0.195413	0.154205	0.030404	0.007208	0.010263	0.009176	0.001229	0.000594	0.027829	0.001330	0.003956

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

San Ardo - AERA - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Bore/Drill Rigs	8	24.00	365	221	0.50	Electrical
Bore/Drill Rigs	1	12.00	16	221	0.50	Diesel
Off-Highway Trucks	1	12.00	16	402	0.38	Diesel

San Ardo - AERA - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Bore/Drill Rigs	0.3243	3.0747	3.0646	0.0143		0.0995	0.0995		0.0916	0.0916	0.0000	1,379.9704	1,379.9704	0.4463		1,391.1282
Off-Highway Trucks	0.7596	5.3786	4.9574	0.0199		0.1945	0.1945		0.1789	0.1789	0.0000	1,929.4319	1,929.4319	0.6240		1,945.0324
Total	**1.0839**	**8.4533**	**8.0220**	**0.0342**		**0.2940**	**0.2940**		**0.2705**	**0.2705**	**0.0000**	**3,309.4023**	**3,309.4023**	**1.0703**		**3,336.1605**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix C – Biological Resources Technical Report

Biological Resources Technical Report for San Ardo 2022 Well Drilling Package, San Ardo Oil Field, Monterey County, California

Prepared for:
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August 19, 2022

Sign-off Sheet

The conclusions in the Report titled Biological Resources Technical Report for San Ardo 2022 Well Drilling Package, San Ardo Oil Field, Monterey County, California are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from Aera Energy LLC (the "Client") and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec's contract with the Client. While the Report may be provided to applicable authorities having jurisdiction and others for whom the Client is responsible, Stantec does not warrant the services to any third party. The report may not be relied upon by any other party without the express written consent of Stantec, which may be withheld at Stantec's discretion.

Prepared by _____

(Signature)

Geoff Hoetker, Senior Biologist

Approved by _____

(Signature)

Stan Glowacki, Senior Biologist

Approved by _____

(Signature)

Michael Weber, Senior Principal Scientist

Table of Contents

LIST OF TABLES

LIST OF APPENDICES

Abbreviations

AERA	Aera Energy LLC
AMM	avoidance and minimization measure
BMPs	Best Management Practices
BRTR	Biological Resources Technical Report
BSA	Biological Study Area
Cal-IPC	California Invasive Plant Council
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CWA	Clean Water Act
°F	degrees Fahrenheit
FESA	Federal Endangered Species Act
GIS	Geographic Information System
GPS	Global Positioning System
LSA	Lake and Streambed Alteration Agreement
MBTA	Migratory Bird Treaty Act
MLRA	Major Land Resource Area
mph	miles per hour
NHD	National Hydrography Dataset
NMFS	National Marine Fisheries Service
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
RWQCB	Regional Water Quality Control Board
SSC	Species of Special Concern
Stantec	Stantec Consulting Services Inc.
SWRCB	State Water Resources Control Board
USACE	U.S. Army Corps of Engineers
USC	United States Code
USFWS	U.S. Fish & Wildlife Service
USGS	US Geological Survey
US 101	U.S. Route 101
WEAP	Worker Environmental Awareness Program
WOTUS	Waters of the United States
WQC	Water Quality Certification

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1.0 INTRODUCTION

1.1 BACKGROUND

This Biological Resources Technical Report (BRTR) prepared by Stantec Consulting Services Inc. (Stantec) documents the biological resources with potential for occurrence in the vicinity of the San Ardo 2022 Well Drilling Package Project (Project) proposed by Aera Energy LLC (Aera) in San Ardo, Monterey County, California.

1.2 PROJECT LOCATION

The Project site is located in the San Ardo oilfield approximately 2 miles east of State Route (SR) 101 and the Salinas River (Appendix A, Figure 1). The Project site is located in Sections 12 and 13 in Township 23 South; Range 10 East; Mount Diablo Base and Meridian; in the Wunpost, CA U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle. Access to the Project site is available via U.S. Route 101 (US 101) to Alvarado Road, east to Wunpost Road, then north along Wunpost Road and east across a bridge over the Salinas River where various areas of the San Ardo Oil Field can then be accessed from Sargent's Road.

1.3 PROJECT DESCRIPTION

Aera proposes to drill and complete eight new crude oil production wells in the San Ardo oilfield. The eight wells would be situated on two existing multi-well pads located in the San Ardo oilfield and are scheduled to be drilled in 2022. The multi-well pads are located on previously disturbed land and would be accessed by existing roads. There would be no new grading to construct the drill pads. The pads would accommodate the drilling rig and associated support equipment and materials. Drilling is anticipated to take five to seven days per well to reach the target and set casing and liners.

Temporary equipment for the Project includes a drilling rig, pumps, pump trucks, and drilling rig support equipment. Various mobilization and transport equipment is also anticipated on the site, including vehicles that transport people and material. New pumping units and flowlines would be constructed for the producing wells. New aboveground flow lines would be constructed leading from the wells to offsite treatment facilities. Drilling of the eight wells will require approximately 22,400 barrels of water (940,800 gallons).

2.0 METHODS

2.1 LITERATURE REVIEW

A query of the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) was conducted on July 11, 2022 using the RareFind 5 internet application tool

for a search area encompassing the Wunpost, CA USGS quadrangle and eight surrounding quadrangles (Hames Valley, San Ardo, Pancho Rico Valley, Slack Canyon, Valleton, San Miguel, Bradley, and Tierra Redonda Mountain) (CNDDB 2022). The CNDDB list of special-status plants, animals, and sensitive natural communities documented to occur within the search area is included in Appendix B.

Additional data regarding the potential occurrence of special-status species and policies relating to these special-status natural resources were gathered from the following sources:

- Inventory of Rare and Endangered Vascular Plants of California (California Native Plant Society [CNPS] 2022);
- CalFlora Observation Search (CalFlora 2022);
- CDFW Special Animals List (CDFW 2022a);
- National Wetland Inventory (NWI) GIS data (U.S. Fish and Wildlife Service [USFWS] 2022);
- National Hydrography Dataset (NHD) GIS data (USGS 2022); and
- Aerial imagery of the Project site and surrounding areas.

2.2 BIOLOGICAL SURVEY AND HABITAT ASSESSMENT

A biological reconnaissance survey and habitat assessment were conducted on July 13, 2022, by Stantec Senior Biologist Geoff Hoetker and Stantec Principal Environmental Planner Eric Snelling. Mr. Hoetker has over 24 years of experience conducting biological reconnaissance surveys. The site visit was conducted from approximately 09:45 AM to 11:45 AM under clear conditions, a temperature of approximately 65 degrees Fahrenheit (°F), and no wind. The primary goals of the reconnaissance survey/habitat assessment were to identify and assess the suitability of habitat for special-status plant and wildlife species within the Biological Study Area (BSA), which included the Project area and a 500-foot buffer, and to record the plant and wildlife species within the BSA. The BSA was surveyed on foot by walking meandering transects throughout the BSA, while taking notes and photographs. Plants were identified based on professional knowledge and experience and/or by using keys, descriptions, and illustrations in Baldwin et al. (2012), Wildlife species were identified and recorded by sight, sound, or their sign. Species identifications conform to the most recent field guides and technical literature.

Some wildlife and plant species may have been difficult to detect due to the reconnaissance survey being conducted outside of the blooming period for most special-status plant species, and the elusive nature, cryptic morphology, or nocturnal behavior of wildlife. No protocol wildlife surveys were conducted, and the survey for plants that occurred in July 2022, while conducted during a season where certain plants were germinating and/or flowering, is not considered a full floristic botanical survey per the standards of USFWS (2000) and CDFW (2018).

Characterizations of vegetation community types are based on Sawyer et al. (2009) (with vegetation types defined at least to the alliance level), which is considered the current standard. Vegetation maps were prepared by utilizing Global Positioning System (GPS) technology with sub-meter accuracy to map resources in the field, with data processed using Geographic Information

System (GIS) software (ArcGIS). Supplemental vegetation mapping was conducted by digitizing polygons in GIS using high-resolution aerial imagery. Most boundaries shown on the maps are accurate within approximately 1 meter; however, boundaries between some vegetation types are less precise due to limitations interpreting aerial imagery and accessing stands of vegetation. Appendix C provides photographs of current vegetative conditions and habitats of the BSA.

Habitats within the BSA were evaluated for their potential to support special-status species based on species habitat requirements in the literature and the professional knowledge and experience of Stantec's biologist. More details regarding habitat assessments are provided in Section 5.

3.0 REGULATORY SETTING

3.1 FEDERAL REGULATIONS

3.1.1 Federal Endangered Species Act

The Federal Endangered Species Act (FESA) includes provisions that protect federally listed threatened and endangered species and their habitats from unlawful take, ensuring that federal actions do not jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. Under the FESA, "take" is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." The FESA regulations define harm as "an act which actually kills or injures fish or wildlife." Harm is further defined to include significant habitat modification or degradation that actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering" (50 Code of Federal Regulations [CFR] § 17.3). Critical habitat is defined in Section 3(5)(A) of FESA as "(i) the specific areas within the geographical area occupied by the species on which are found those physical or biological features (I) essential to the conservation of the species, and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species upon a determination by the Secretary of Commerce or the Secretary of the Interior that such areas are essential for the conservation of the species." The effects analyses for designated critical habitat must consider the role of the critical habitat in both the continued survival and the eventual recovery (i.e., the conservation) of the species in question.

Activities that may result in "take" of listed species are typically regulated by the USFWS and National Marine Fisheries Service (NMFS) through the FESA. FESA Section 7 requires federal agencies to make a finding as to whether a federal action has the potential to adversely affect and/or jeopardize the continued existence of any listed species potentially affected by the action. Federal actions regulated under Section 7 include issuance of a permit (*e.g.*, Section 404 Clean Water Act Permit) or providing funding to a public or private agency for a project.

3.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 (16 United States Code [USC] 703-711) makes it unlawful to possess, buy, sell, purchase, barter or "take" any migratory bird listed in Title 50 of the Code of Federal Regulations Part 10. "Take" is defined as possession or destruction of migratory birds, their nests or eggs. Disturbances that cause nest abandonment and/or loss of reproductive effort or the loss of habitats upon which these birds depend may be a violation of the MBTA. The MBTA prohibits killing, possessing, or trading in migratory birds except in accordance with federal regulations. The MBTA protects whole birds, parts of birds, and bird nests and eggs.

3.1.3 Clean Water Act Section 404

Section 404 of the Clean Water Act (CWA) regulates the discharge of dredged material, placement of fill material, or certain types of excavation within "waters of the U.S." (WOTUS) resulting in more than incidental fallback of material and authorizes the Secretary of the Army, through the Chief of Engineers, to issue permits for such actions. Permits can be issued for individual projects (individual permits) or for general categories of projects (general permits). WOTUS are defined by the CWA as "rivers, creeks, streams, and lakes extending to their headwaters and any associated wetlands." Wetlands are defined by the CWA as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions." The U.S. Army Corps of Engineers (USACE) has adopted several revisions to their regulations in order to more clearly define WOTUS. Until the beginning of 2001, WOTUS included, among other things, isolated wetlands and lakes, intermittent streams, prairie potholes, and other waters that are not part of a tributary system to interstate waters or to navigable WOTUS.

3.1.4 Clean Water Act Section 401

Section 401 of the CWA ensures that federally permitted activities comply with state water quality laws. Section 401 of the CWA is implemented by either the State Water Resources Control Board (SWRCB) or the Regional Water Quality Control Board (RWQCB), triggered by the Section 404 permitting process. Either the State or Regional Water Boards may issue a Water Quality Certification (WQC) via the Section 401 process that requires a proposed project to comply with water quality standards and other conditions of California law. Newly adopted state wetland procedures by the SWRCB (2019) also apply to 401 WQCs, with certain exemptions.

3.2 STATE REGULATIONS

3.2.1 California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires public agencies to consider the environmental consequences of their discretionary actions. CEQA is intended to inform government decisionmakers and the public about the potential environmental effects of

proposed activities and to prevent significant, avoidable environmental effects. Guidance for determining impacts under CEQA is based on the State CEQA Guidelines. Using these guidelines, activities requiring CEQA review within the Project boundary would have a significant impact on biological resources if they would:

- 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 USFWS or CDFW;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the USFWS or CDFW;
- Have a substantial adverse effect on federally protected wetlands as defined by CWA Section 404;
- Interfere substantially with the movement of any resident or migratory species of wildlife, wildlife corridors, or wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources; and/or
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Planning, or other approved state, regional, or local habitat conservation plan.

3.2.2 California Endangered Species Act

Provisions of California Endangered Species Act (CESA) protect State-listed threatened and endangered species. The CDFW regulates activities that may result in "take" of individuals ("take" means "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill"). Habitat degradation or modification is not expressly included in the definition of "take" under the California Fish and Game Code (CFGC). Additionally, the CFGC contains lists of vertebrate species designated as "fully protected" (CFGC §§ 3511 [birds], 4700 [mammals], 5050 [reptiles and amphibians], 5515 [fish]). Such species may not be taken or possessed.

In addition to Federal and State-listed species, the CDFW also has produced a list of California Species of Special Concern (SSC). Species on this list are of limited distribution or the extent of their habitats has been reduced substantially, such that threat to their populations may be imminent.

3.2.3 Section 1602 of the California Fish and Game Code

Section 1602 of the CFGC requires any person, state or local government agency, or public utility proposing a project that may substantially affect a river, stream, or lake to notify the CDFW before beginning the project. If activities will result in the diversion or obstruction of the natural flow of a stream, substantially alter its bed, channel, or bank, impact riparian vegetation, or adversely affect existing fish and wildlife resources, a Lake and Streambed Alteration Agreement (LSA) is

required. A LSA lists CDFW conditions of approval for the project and serves as an agreement between the applicant and CDFW for the performance of activities subject to CFGC 1602. CDFW jurisdiction under Section 1602 typically extends from the channel bed of a drainage to the top of bank or outer edge of the riparian vegetation (whichever is greater).

3.2.4 Section 3503 of the California Fish and Game Code

Disturbance that causes bird nest abandonment and/or loss of reproductive effort is considered "take" by the CDFW. Under Sections 3503 and 3503.5 of the CFGC, activities that would result in the taking, possessing, or destroying of any birds-of-prey (raptors); taking or possessing of any migratory nongame bird (as designated in the MBTA); taking, possessing, or needlessly destroying the nest or eggs of any raptors or non-game birds protected by the MBTA; or the taking of any non-game bird, are prohibited. Birds of prey are protected in California under CFGC Section 3503.5, which states it is "unlawful to take, possess, or destroy any birds of prey (in the order Falconiformes or Strigiformes) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this Code or any regulation adopted pursuant thereto."

3.3 OTHER APPLICABLE STANDARDS

3.3.1 California Native Plant Society Rare Plant Program

The mission of the CNPS Rare Plant Program is to develop current, accurate information on the distribution, ecology, and conservation status of California's rare and endangered plants, and to use this information to promote science-based plant conservation in California. Once a species has gone through a review process, information on all aspects of the species (listing status, habitat, distribution, threats, etc.) are entered into the online CNPS Inventory and given a California Rare Plant Rank (CRPR). The CNPS Rare Plant Program currently recognizes more than 1,600 plant taxa (species, subspecies, and varieties) as rare or endangered in California. Vascular plants listed as rare or endangered by the CNPS, but which may not have designated status under State endangered species legislation, are defined by the following CRPRs:

- CRPR 1A - Plants presumed extirpated in California and either rare or extinct elsewhere;
- CRPR 1B - Plants rare, threatened, or endangered in California and elsewhere;
- CRPR 2A - Plants presumed extirpated in California but common elsewhere;
- CRPR 2B - Plants rare, threatened, or endangered in California but more common elsewhere;
- CRPR 3 - Plants about which more information is needed; and
- CRPR 4 - Plants of limited distribution (a watch list).

In addition to the CRPR designations above, the CNPS adds a Threat Rank as an extension added onto the CRPR and designates the level of endangerment by a 1 to 3 ranking, with 1 being the most endangered and 3 being the least endangered and are described as follows:

- 0.1 – Seriously threatened in California (high degree/immediacy of threat);
- 0.2 – Moderately threatened in California (moderate degree/immediacy of threat); and
- 0.3 – Not very threatened in California (low degree/immediacy of threats or no current threats known.

Impacts to CRPR 1A, 1B, 2A, 2B, and 3 plants must be assessed in compliance with CEQA, and the CNPS strongly recommends an assessment of impacts to CRPR 4 species in CEQA documentation.

4.0 EXISITING CONDITIONS

4.1 REGIONAL SETTING

The BSA is located within the Salinas Valley, Monterey County, within a rolling hill landscape of the Inner Coast Ranges at an elevation of approximately 900 feet and approximately 35 miles inland and east of the Pacific Ocean. Average summer high temperatures are approximately 90 °F, average winter low temperatures are approximately 62°F, and annual precipitation averages approximately 16.5 inches.

4.2 LOCAL SETTING

The BSA is within the highly altered and disturbed setting of the San Ardo Oil Field just east of SR 101 and the Salinas River, which is the region's major hydrological feature. The BSA encompasses approximately 36.6 acres and includes mainly ruderal/disturbed areas with oil production infrastructure (e.g., well pads, wells, and pipelines) and non-native annual grasslands along hillslopes.

4.2.1 Soils

Soils within the BSA as characterized and mapped by the Natural Resources Conservation Service (NRCS) (2022) consist entirely of Nacimiento-Los Osos complex, 30 to 50 percent slopes, Major Land Resource Area (MLRA) 15. Nacimiento and Los Osos soils consist of moderately deep soils that formed in material weathered from sandstone and shale. They are fine loamy soils that are well-drained with medium to very high runoff and slow to moderately slow permeability. Neither Nacimiento nor Los Osos soils are considered to be hydric soils. A soils map is included in Appendix A, Figure 2.

4.2.2 Hydrology

The major hydrological feature in the region is the Salinas River, which occurs west of the BSA. There are no other wetland or stream features in or near the BSA based on an analysis of NWI (USFWS 2022) data, NHD (USGS 2022) data, USGS topographic maps, and visual observation at the time of the site reconnaissance survey.

4.3 VEGETATION COMMUNITIES, AND AQUATIC RESOURCES, AND OTHER LAND COVER TYPES

Vegetation communities, aquatic resources, and other land cover types within the BSA are presented in Table 1 and Appendix A, Figure 3. These areas are described further below.

Table 1. Vegetation Communities, Aquatic Resources, and Other Land Cover Types in the BSA

Vegetation Community[1]/Aquatic Resource/Land Cover Type	Habitat Type	State Rank[2]	Total Acres in Survey Area
Avena spp. – *Bromus* spp. Herbaceous Semi-Natural Alliance (Wild Oats and Annual Brome Grasslands)	Upland	SNA[3]	28.323
Ruderal/Disturbed	Upland	--	8.275
Total			**36.598**

[1] Per the Manual of California Vegetation (Sawyer et al. 2009)
[2] Per the California Natural Community List (CDFW 2022b)
[3] SNA = no applicable State Ranking (i.e., not considered sensitive)

4.3.1 Vegetation Communities

Using the classification of vegetation in Sawyer et al. (2009), two vegetation communities were identified in the BSA, which are outlined below.

4.3.1.1 *Avena* spp. – *Bromus* spp. Herbaceous Semi-Natural Alliance (Wild Oats and Annual Brome Grasslands)

The *Avena* spp. – *Bromus* spp. Herbaceous Semi-Natural Alliance, consisting of non-native annual grasslands (wild oats and annual brome grasslands), occurs within the BSA along hillslopes and other areas not presently directly affected by oil production activities. This alliance is characterized by brome (*Bromus* spp.) and/or wild oats (*Avena* spp.) as dominant or co-dominant with other non-native herbaceous species; trees and shrubs may also be present at low cover (Sawyer et al., 2009). Non-native annual grasslands in the BSA were dominated by ripgut brome (*Bromus diandrus*) and slender wild oat (*Avena barbata*) at the time of the reconnaissance survey. Other common species observed in these grasslands included red-stemmed filaree (*Erodium cicutarium*), turkey-mullein (*Croton setiger*), vinegar weed (*Trichostemma lanceolatum*), and occasional coyote brush (*Baccharis pilularis*).

4.3.1.2 Ruderal/Disturbed

This classification was used for areas that are weedy or otherwise subjected to routine disturbance from oil production activities, such as in the vicinity of well pads. There is no applicable alliance category of vegetation classification ruderal/disturbed vegetative communities per Sawyer et al. (2009). These areas are composed of ruderal pioneer plant species that readily colonize open disturbed soil and thrive as a result of anthropogenic impacts. Some of the plants present within ruderal/disturbed areas included summer mustard (*Hirschfeldia incana*), russian thistle (*Salsola tragus*), yellow star-thistle (*Centaurea solstitialis*), tocalote (*Centaurea melitensis*), ragweed (*Ambrosia psilostachia*), and telegraph weed (*Heterotheca grandiflora*). Ruderal/disturbed areas have limited potential to support special-status plant or wildlife species.

4.4 PLANTS AND WILDLIFE

4.4.1 Plant Species Observed

The BSA was assessed for common and rare vascular plants on July 13, 2022. The reconnaissance survey resulted in the documentation of 12 native species and 11 non-native species, of which nine are considered invasive. Table 2, below, presents a list of all plants observed within the BSA.

Table 2. Plant Species Observed Within the BSA

Scientific Name	Common Name	Origin/Status[1]
Amaranthaceae		
Salsola tragus	Russian thistle	Non-native, Cal-IPC Limited
Apocynaceae		
Asclepias eriocarpa	Indian milkweed	Native
Asteraceae		
Ambrosia psilostachia	ragweed	Native
Baccharis pilularis	coyote brush	Native
Centaurea melitensis	tocalote	Non-native, Cal-IPC Moderate
Centauria solstitialis	yellow star thistle	Non-native, Cal-IPC High
Corethrogyne filaginifolia	California aster	Native
Deinandra pentactis	Salinas River tarweed	Native
Heterotheca grandiflora	telegraph weed	Native
Lactuca serriola	prickly lettuce	Non-native
Boraginaceae		
Heliotropium curassavicum	heliotrope	Native
Brassicaceae		
Hirschfeldia incana	short-pod mustard	Non-native, Cal-IPC Moderate
Euphorbiaceae		
Croton setigerus	turkey mullein	Native
Fabaceae		
Vicia benghalensis	purple vetch	Non-native
Geraniaceae		
Erodium cicutarium	redstem filaree	Non-native, Cal-IPC Limited
Lamiaceae		
Marrubium vulgare	horehound	Non-native, Cal-IPC Limited
Trichostemma lanceolatum	vinegarweed	Native
Poaceae		
Avena barbata	slender wild oat	Non-native, Cal-IPC Moderate
Bromus diandrus	ripgut brome	Non-native, Cal-IPC Moderate

Scientific Name	Common Name	Origin/Status[1]
Polygonaceae		
Eriogonum nudum var. auriculatum	naked buckwheat	Native
Rosaceae		
Heteromeles arbutifolia	toyon	Native
Solanaceae		
Datura wrighti	Jimsonweed	Native
Nicotiana glauca	tree tobacco	Non-native, Cal-IPC Moderate

[1] Native/Non-native = Native species are those that occur naturally in an area, per Baldwin et al. (2012). Cal-IPC = Identified in the California Invasive Plant Council (Cal-IPC) Inventory of Invasive Plants (Cal-IPC 2022).

4.4.2 Invasive Plants

Invasive plants occurring in the BSA are ranked by three threat rating levels as defined by the California Invasive Plant Council (Cal-IPC) (Cal-IPC 2022):

- High – These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.
- Moderate – These species have substantial and apparent (but generally not severe) ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.
- Limited – These species are invasive, but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.

Table 2 includes nine invasive plants found within the BSA during the July 13, 2022 reconnaissance survey, including one plant with a Cal-IPC rating of High, five plants with a Cal-IPC rating of Moderate, and three plants with a Cal-IPC rating of Limited.

4.4.3 Common Wildlife

A few bird species were observed during the reconnaissance survey either foraging within or flying over/through the BSA, including common raven (*Corvus corax*), turkey vulture (*Cathartes aura*), and red-tailed hawk (*Buteo jamaicensis*). A loggerhead shrike (*Lanius ludovicianus*), which is a bird listed as a SSC by CDFW, was observed in the vicinity of a toyon (*Heteromeles arbutifolia*) shrub located over 200 feet west of the well pads where work is proposed. Common insects observed included ants (Family Formicidae), grasshoppers (Family Acrididae), tarantula

hawk wasp (*Pepsis* sp.) and cabbage white butterfly (*Pieris rapae*). Black-tailed jackrabbit (Lepus californicus) was observed in adjacent grasslands and guano droppings from unidentified bats were observed from roosts in a hillside over 300 feet east of the well pads. Small mammal burrows, likely from California ground squirrel (*Otospermophilus beecheyi*), were sparse within the BSA and no sizeable dens were observed that would have been potentially indicative of San Joaquin kit fox (*Vulpes macrotis mutica*) or American badger (*Taxidea taxus*).

5.0 SPECIAL-STATUS SPECIES AND HABITATS

For the purpose of this analysis, special-status species are defined as:

- Species designated as either rare, threatened, or endangered by CDFW or the USFWS, and are protected under FESA and/or CESA;
- Species that are candidates for possible future listing as threatened or endangered under FESA (67 FR 40657, June 13, 2002).
- Species that are listed or proposed for listing by California as threatened or endangered under CESA (14 California Code of Regulations [CCR] 670.5).
- Species that are recognized as California SSC by CDFW or are included on the CDFW Watch List;
- Plants appearing on the CNPS CRPR 1A, 1B, 2A, 2B, and 3;
- Species fully protected by CFGC Sections 3511, 4700, 5050, or 5515;
- Species of expressed concern to resource/regulatory agencies or local jurisdictions;
- Species that occur on the CDFW Special Animals List (CDFW 2022); and/or
- Birds protected by the MBTA or CFGC.

Each special status species known to occur in the BSA (if applicable), and those special status species that have the potential to occur in the Project vicinity have been designated a specific level of "potential for occurrence" within the BSA, defined as follows:

- Present: Species documented by the CNDDB or other sources to occur in the BSA or presence or sign of species was observed onsite at time of the field survey.
- Likely: Species not observed on site but may reasonably be expected to occur there on a regular basis. Or, species not observed on the site, exceptional habitat exists, and additional surveys needed to verify presence.

- Possible: Species not observed on site but could occur there from time to time. Or, species not observed on the site, suitable habitat exists, and additional surveys needed to verify presence.
- Unlikely: Species not observed on site, and would not be expected to occur there except, perhaps, as a transient. Or, species not observed on the site, marginally suitable habitat exists, and additional surveys needed to verify presence.
- Absent: Species or sign of their presence not observed on site and precluded from occurring there because habitat requirements not met.

5.1 SPECIAL-STATUS PLANTS

The CNDDB (2022) documents the special-status plant taxa (federally listed, state listed, and/or CRPR 1, 2, 3, or 4) with records within the Wunpost, CA USGS quadrangle and eight surrounding quadrangles (Appendix B). The names and legal status of each of the special-status plant taxa considered are included in Table 3 below, as well as a general description of the habitat requirements for each. Also included is a determination whether suitable habitat is present or absent, whether the taxon is present, and/or whether the BSA is located within a federally designated critical habitat unit. The rationale section summarizes the potential for each taxon to occur in the BSA or be affected by the project.

5.2 SPECIAL-STATUS ANIMALS

The CNDDB (2022) documents special-status animal taxa, including federally listed, state-listed, California Fully Protected, SSCs, CNDDB Special Animals, and/or protected by the MBTA and CFGC with records within the Wunpost, CA USGS quadrangle and eight surrounding quadrangles (Appendix B). Other taxa not appearing on the CNDDB or USFWS species lists included loggerhead shrike (which was observed in the BSA) and the "other nesting birds" category, which was added for the various species of birds with potential to nest in the BSA that are protected by the MBTA and CFGC Section 3503. The names and legal status of each of the special-status animal taxa considered are included in Table 4 below, as well as a general description of the habitat requirements for each. Also included is a determination whether suitable habitat is present or absent, whether the taxon is present, and/or whether the BSA is located within a federally designated critical habitat unit. The rationale section summarizes the potential for each animal taxon to occur in the BSA or be affected by the Project.

5.3 SENSITIVE NATURAL COMMUNITIES

Sensitive natural communities are defined by CDFW (2018) as, "...communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects." All vegetation is ranked with an "S" State rarity rank and are of special concern (S1-S3 rank). The CNDDB (2022) documents two sensitive natural communities with records within the search area, including Sycamore Alluvial Woodland and Valley Oak

Woodland (Appendix B). No vegetation representative of these sensitive natural communities is present within the BSA, and no impacts are anticipated to occur to either of these communities.

5.4 WILDLIFE CORRIDORS

The Salinas River, located west of the BSA, is a known migratory corridor for anadromous steelhead trout (*Oncorhynchus mykiss irideus*). This federally listed species migrates from the ocean to upstream reaches and tributaries to spawn, and hatchling fry and juveniles use the stream for rearing. Various amphibians, reptiles, and mammals could potentially use the Salinas River and its riparian habitat as a dispersal corridor. The BSA, confined to the San Ardo oil field, does not support a known wildlife corridor.

Table 3. Special-Status Plant Species Evaluated for Potential Occurrence

Common Name	Scientific Name	Status Federal/ State/CRPR	General Habitat Description	Habitat Present/ Absent	Rationale
Indian Valley spineflower	*Aristocapsa insignis*	-- / -- / 1B.2	Annual herb that occurs in cismontane woodland in sandy soils. Elevation range: 300–600 meters. Typical blooming period is May to September.	A	**Absent**: No suitable habitat conditions are present in the BSA for this species.
La Panza mariposa-lily	*Calochortus simulans*	-- / -- / 1B.3	Perennial herb that occurs in chaparral, cismontane woodland, lower montane coniferous forest, and valley grassland, often in granitic soils, sandy soils or sometimes serpentinite soils. Elevation range: 160–960 meters. Typical blooming period is April to June.	P	**Unlikely**: The BSA supports suitable annual grassland habitat, but in areas outside of the proposed area of disturbance. Not observed during the reconnaissance survey and no potential for project-related impacts.
dwarf calycadenia	*Calycadenia villosa*	-- / -- / 1B.1	Annual herb with limited distribution mainly in the Central Coast Ranges. It occurs in chaparral, cismontane woodland, meadows and seeps and valley and foothill grassland in fine, rocky soils. Elevation range: 240–1,350 meters. Typical blooming period is May to October.	A	**Absent**: No suitable fine rocky soil conditions are present in the BSA for this species.
Hardham's evening-primrose	*Camissoniopsis hardhamiae*	-- / -- / 1B.2	Annual herb that occurs in the chaparral and woodland. Occurs in in sandy soil and decomposed carbonate, sometimes in disturbed or burned areas. Elevation range: 140–945 meters. Typical blooming period is March to May.	A	**Absent**: No suitable habitat conditions are present in the BSA for this species.
San Luis Obispo owl's-clover	*Castilleja densiflora* var. *obispoensis*	-- / -- / 1B.2	Annual herb (hemiparasitic) that occurs in meadows and seeps and valley and foothill grassland, sometimes in serpentinite soils. Elevation range: 10-430 meters. Typical blooming period is March to May.	P	**Unlikely**: The BSA supports suitable annual grassland habitat, but in areas outside of the proposed area of disturbance. Not observed during the reconnaissance survey and no potential for project-related impacts.

Common Name	Scientific Name	Status Federal/ State/CRPR	General Habitat Description	Habitat Present/ Absent	Rationale
Lemmon's jewelflower	*Caulanthus lemmonii*	-- / -- / 1B.2	Annual herb that occurs in pinyon and juniper woodland and valley and foothill grassland. Elevation range: 80–1,580 meters. Typical blooming period is February to May.	P	**Unlikely**: The BSA supports suitable annual grassland habitat, but in areas outside of the proposed area of disturbance. Not observed during the reconnaissance survey and no potential for project-related impacts.
Santa Lucia purple amole	*Chlorogalum purpureum* var. *purpureum*	FT, CH / -- / 1B.1	Perennial bulbiferous herb that occurs in chaparral, cismontane woodlands, and valley and foothill grasslands on gravelly or clay soils. Elevation range: 205–385 meters. Typical blooming period is April to June.	A	**Absent**: No suitable gravelly or clay soil conditions are present in the BSA for this species. The BSA does not occur within a critical habitat unit for this species.
Monterey spineflower	*Chorizanthe pungens* var. *pungens*	FT, CH / -- / 1B.2	Annual herb that occurs in maritime chaparral, cismontane woodland, coastal dunes, coastal scrub, and valley and foothill grassland in sandy soils. Elevation range: 3–450 meters. Typical blooming period is April to June (or July to August).	A	**Absent**: No suitable sandy soil conditions are present in the BSA for this species. The BSA does not occur within a critical habitat unit for this species.
straight-awned spineflower	*Chorizanthe rectispina*	-- / -- / 1B.2	Annual herb known from about twenty occurrences from Monterey to Santa Barbara Counties. It occurs in in chaparral, cismontane woodland, and chaparral. Elevation range: 85-1,035 meters. Typical blooming period is April to July.	A	**Absent**: No suitable habitat conditions are present in the BSA for this species.
Jolon clarkia	*Clarkia jolonensis*	-- / -- / 1B.2	Annual herb that occurs in chaparral, cismontane woodland, coastal scrub, and riparian woodland. Elevation range: 20-660 meters. Typical blooming period is April to June.	A	**Absent**: No suitable habitat conditions are present in the BSA for this species.
San Antonio collinsia	*Collinsia antonina*	-- / -- / 1B.2	Annual herb that occurs in chaparral and cismontane woodland. Elevation range: 280-365 meters. Typical blooming period is March to May.	A	**Absent**: No suitable habitat conditions are present in the BSA for this species.

Common Name	Scientific Name	Status Federal/ State/CRPR	General Habitat Description	Habitat Present/ Absent	Rationale
umbrella larkspur	*Delphinium umbraculorum*	-- / -- / 1B.3	Perennial herb that occurs in chaparral and cismontane woodland. Elevation range: 400-1,600 meters. Typical blooming period is April to June.	A	**Absent**: No suitable habitat conditions are present in the BSA for this species.
Koch's cord moss	*Entosthodon kochii*	-- / -- / 1B.3	Moss that occurs in cismontane woodland. Elevation range: 180-1,000 meters. Typical blooming period is April to June.	A	**Absent**: No suitable habitat conditions are present in the BSA for this species.
yellow-flowered eriastrum	*Eriastrum luteum*	-- / -- / 1B.2	Annual herb that occurs in broadleaf upland forest, chaparral, and cismontane woodland, sometimes in gravelly or sandy soils. Elevation range: 290-1,000 meters. Typical blooming period is May to June.	A	**Absent**: No suitable habitat conditions are present in the BSA for this species.
Temblor buckwheat	*Eriogonum temblorense*	-- / -- / 1B.2	Annual herb that occurs in valley and foothill grassland in clay and sandstone soils. Elevation range: 300-1,000 meters. Typical blooming period is May to September (occasionally as early as April).	P	**Unlikely**: The BSA supports suitable annual grassland habitat, but in areas outside of the proposed area of disturbance. Not observed during the reconnaissance survey and no potential for project-related impacts.
Santa Lucia monkeyflower	*Erythranthe hardhamiae*	-- / -- / 1B.1	Annual herb that occurs in openings in chaparral in sandstone or sandy soils, sometimes in serpentinite soil. Elevation range: 300-730 meters. Typical blooming period is March to May.	A	**Absent**: No suitable habitat conditions are present in the BSA for this species.
Kellogg's horkelia	*Horkelia cuneata ssp sericea*	-- / -- / 1B.1	Perennial herb that occurs in closed-cone coniferous forest, maritime chaparral, coastal dunes, and coastal scrub in openings; sometimes in gravelly or sandy soils. Elevation range: 10-200 meters. Typical blooming period is April to September.	A	**Absent**: No suitable habitat conditions are present in the BSA for this species.

Common Name	Scientific Name	Status Federal/ State/CRPR	General Habitat Description	Habitat Present/ Absent	Rationale
Santa Lucia dwarf rush	*Juncus luciensis*	-- / -- / 1B.2	Annual herb that occurs in chaparral, Great Basin scrub, lower montane coniferous forest, meadows and seeps, and vernal pools. Elevation range: 300–2,040 meters. Typical blooming period is April to July.	A	**Absent**: No suitable habitat conditions are present in the BSA for this species.
Diablo Range hare-leaf	*Lagophylla diabolensis*	-- / -- / 1B.2	Annual herb that occurs in cismontane woodland and valley and foothill grassland in clay soils. Elevation range: 365-885 meters. Typical blooming period is April to September.	A	**Absent**: No suitable habitat conditions are present in the BSA for this species.
pale-yellow layia	*Layia heterotricha*	-- / -- / 1B.1	Annual herb that occurs in cismontane woodland, coastal scrub, pinyon and juniper woodland, and valley and foothill grassland, in alkaline or clay soils. Elevation range: 300-1,705 meters. Typical blooming period is March to June.	A	**Absent**: No suitable habitat conditions are present in the BSA for this species.
Abbott's bush-mallow	*Malacothamnus abbottii*	-- / -- / 1B.1	Perennial deciduous shrub that occurs in riparian scrub. Elevation range: 135-490 meters. Typical blooming period is May to October.	A	**Absent**: No suitable habitat conditions are present in the BSA for this species.
Indian Valley bush-mallow	*Malacothamnus aboriginum*	-- / -- / 1B.2	Perennial deciduous shrub that occurs in chaparral and cismontane woodland, often in burned areas or granitic or rocky soils. Elevation range: 150-1,700 meters. Typical blooming period is April to October.	A	**Absent**: No suitable habitat conditions are present in the BSA for this species.
Davidson's bush-mallow	*Malacothamnus davidsonii*	-- / -- / 1B.2	Perennial deciduous shrub that occurs in chaparral, cismontane woodland, coastal scrub, and riparian woodland. Elevation range: 185-1,140 meters. Typical blooming period is June to January.	A	**Absent**: No suitable habitat conditions are present in the BSA for this species.

Common Name	Scientific Name	Status Federal/ State/CRPR	General Habitat Description	Habitat Present/ Absent	Rationale
Carmel Valley bush-mallow	*Malacothamnus palmeri* var. *involucratus*	-- / -- / 1B.2	Perennial deciduous shrub that occurs in chaparral, cismontane woodland, and coastal scrub. Elevation range: 30-1,100 meters. Typical blooming period is April to October.	A	**Absent**: No suitable habitat conditions are present in the BSA for this species.
shining navarretia	*Navarretia nigelliformis* ssp. *radians*	-- / -- / 1B.2	Annual herb that occurs in cismontane woodland, valley and foothill grassland, and vernal pools. Elevation range: 65–1,000 meters. Typical blooming period is April to July (occasionally as early as March).	P	**Unlikely**: The BSA supports suitable annual grassland habitat, but in areas outside of the proposed area of disturbance. Not observed during the reconnaissance survey and no potential for project-related impacts.
prostrate vernal pool navarretia	*Navarretia prostrata*	-- / -- / 1B.2	Annual herb that occurs in coastal scrub, meadows and seeps, valley and foothill grassland, and vernal pools. Elevation range: 3–1,210 meters. Typical blooming period is April to July.	P	**Unlikely**: The BSA supports suitable annual grassland habitat, but in areas outside of the proposed area of disturbance. Not observed during the reconnaissance survey and no potential for project-related impacts.
Robbin's nemacladus	*Nemacladus secundiflorus var. robbinsii*	-- / -- / 1B.2	Annual herb that occurs in openings in chaparral and valley and foothill grassland. Elevation range: 350–1,700 meters. Typical blooming period is April to June.	P	**Unlikely**: The BSA supports annual grassland habitat, but is below the known elevation range for the species.
hooked popcornflower	*Plagiobothrys uncinatus*	-- / -- / 1B.2	Annual herb that occurs in chaparral (sandy soils), cismontane woodland, and valley and foothill grasslands. Elevation range: 300-760 meters. Typical blooming period is April to May.	P	**Unlikely**: The BSA supports suitable annual grassland habitat, but in areas outside of the proposed area of disturbance. Not observed during the reconnaissance survey and no potential for project-related impacts.
Santa Cruz microseris	*Stebbinsoseris decipiens*	-- / -- /1B.2	Annual herb that occurs in broadleafed upland forest, closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, and valley and foothill grassland. Elevation range: 10-500 meters. Typical blooming period is April to May.	P	**Unlikely**: The BSA supports suitable annual grassland habitat, but in areas outside of the proposed area of disturbance. Not observed during the reconnaissance survey and no potential for project-related impacts.

Common Name	Scientific Name	Status Federal/ State/CRPR	General Habitat Description	Habitat Present/ Absent	Rationale
Mason's neststraw	*Stylocline masonii*	-- / -- / 1B.1	Annual herb that occurs in chenopod scrub and pinyon and juniper woodland in sandy soils. Elevation range: 10-1,200 meters. Typical blooming period is March to May.	A	**Absent**: No suitable habitat conditions are present in the BSA for this species.

General References:

CNDDB RareFind 9 quad search centered on BSA (accessed July 2022).

Status Codes: No Status (--);Federal Endangered (FE); Federal Threatened (FT); Federal Proposed Endangered (FPE); Federal Proposed Threatened (FPT); Federal Candidate (FC), Critical Habitat designated (CH); State Endangered (SE); State Threatened (ST); State Candidate (SC); State Rare (SR); California Native Plant Society (CNPS): Rare, threatened, or endangered in California and elsewhere (Rank 1B); Rare, threatened, or endangered in California, but more common elsewhere (Rank 2); Plants that about which more information is needed (Rank 3); A watch list plant of limited distribution (Rank 4); Threat Code: Seriously endangered I California (≥80% of occurrences threatened / high degree and immediacy of threat) (.1); Fairly endangered in California (20-80% occurrences threatened) (.2); Not very endangered I California (≤20% of occurrences threatened or no current threats known) (.3).

Table 4. Special-Status Animal Species Evaluated for Potential Occurrence

Common Name	Scientific Name	Status Federal/ State/CDFW	General Habitat Description	Habitat Present/ Absent	Rationale
Invertebrates					
vernal pool fairy shrimp	*Branchinecta lynchi*	FT, CH / -- / --	Occurs in vernal pool habitats, including depressions in sandstone, to small swale, earth slump, or basalt-flow depressions with a grassy or, occasionally, muddy bottom in grassland.	A	**Absent**: No suitable vernal pool habitat conditions are present in the BSA. The BSA does not occur within a critical habitat unit for this species.
Fish					
Monterey hitch	*Lavinia exilicauda harengus*	-- / -- / SA	Can occupy a wide variety of habitats, although most abundant in lowland areas with large pools or in small reservoirs that mimic such conditions. Most abundant in low-gradient sites in the Pajaro River basin with permanent water and large pools in summer. Also found along Salinas River and Nacimiento River.	A	**Absent**: No suitable aquatic habitat conditions are present in the BSA.
Amphibians					
California tiger salamander	*Ambystoma californiense pop. 1*	FT, CH / ST/ --	Requires underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.	A	**Absent**: No suitable aquatic/vernal pool habitat or adjacent upland habitat conditions are present in the BSA. The BSA is outside of the known range of the species and does not occur within a critical habitat unit for this species.
foothill yellow-legged frog	*Rana boylii*	-- / SE / SSC	Occurs in partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. It needs at least some cobble-sized substrate for egg-laying.	A	**Absent**: No suitable aquatic habitat conditions are present in the BSA.

Common Name	Scientific Name	Status Federal/ State/CDFW	General Habitat Description	Habitat Present/ Absent	Rationale
western spadefoot	*Spea hammondii*	-- / -- /SSC	Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, and lowlands. Requires vernal pools for breeding and egg laying, with 11–20 weeks of surface water for larval development.	A	**Absent**: No suitable vernal pool habitat or adjacent upland habitat conditions are present in the BSA.
Reptiles					
northern California legless lizard	*Anniella pulchra*	-- / -- / SSC	Occurs in moist, warm, loose soil with plant cover (moisture is essential). Occurs in sparsely vegetated areas of beach dunes, chaparral, pine oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks.	A	**Absent**: No suitable habitat conditions are present in the BSA.
western pond turtle	*Emys marmorata*	-- / -- / SSC	Occurs in quiet freshwater ponds, lakes, streams, and marshes, typically in deepest parts with abundance of basking sites.	A	**Absent**: No suitable aquatic habitat conditions are present in the BSA.
San Joaquin coachwhip	*Masticophis flagellum ruddocki*	-- / -- / SSC	Open, dry habitats with little or no tree cover. Found in valley grassland and saltbush scrub in the San Joaquin Valley. Needs mammal burrows for refuge and oviposition sites.	P	**Unlikely**: The BSA supports suitable annual grassland habitat, but in areas outside of the proposed area of disturbance. Not observed during the reconnaissance survey and no potential for project-related impacts.
coast horned lizard	*Phrynosoma blainvillii*	-- / -- / SSC	Frequents a wide variety of habitats, most common in lowlands in sandy washes with scattered low bushes. Prefers open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	A	**Absent**: No suitable aquatic habitat conditions are present in the BSA.

Common Name	Scientific Name	Status Federal/ State/CDFW	General Habitat Description	Habitat Present/ Absent	Rationale
Birds					
tricolored blackbird	*Agelaius tricolor*	-- / ST / SSC	Highly colonial species that requires open water with protected nesting substrate, such as bulrush and cattails, and sources for insect prey.	A	**Absent**: No suitable nesting habitat conditions are present in the BSA for this species.
golden eagle	*Aquila chrysaetos*	BGEPA / -- / FP	Found primarily in mountains up to 12,000 feet, canyonlands, rimrock terrain, and riverside cliffs and bluffs. Nest on cliffs and steep escarpments in grassland, chaparral, shrubland, forest, and other vegetated areas.	A (nesting)	**Unlikely**: No suitable nesting habitat conditions are present in the BSA for this species. Golden eagles may forage in the hills adjacent to the BSA but are not expected to be impacted by the proposed project.
great blue heron	*Ardea herodias*	-- / -- / SA	A colonial nester in tall trees, cliffsides, and sequestered spots on marshes. Rookery sites are in close proximity to foraging areas such as marshes, lake margins, tide-flats, rivers, streams and wet meadows.	A	**Absent**: No suitable nesting habitat conditions are present in the BSA for this species.
burrowing owl	*Athene cunicularia*	-- / -- /SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably the California ground squirrel.	P	**Possible**: While no burrowing owls or their sign were observed, marginal habitat for burrowing owls occurs in grasslands adjacent to the well pads. Avoidance and minimization measures are recommended.
ferruginous hawk	*Buteo regalis*	-- / -- / WL	Occurs in open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon and juniper habitats. Prefers elevated nest sites, such as boulders, low cliffs, haystacks, artificial structures, and tall trees.	A (nesting)	**Unlikely**: No suitable nesting habitat conditions are present in the BSA for this species. Ferruginous hawks may forage in the hills adjacent to the BSA but are not expected to be impacted by the proposed project.

Common Name	Scientific Name	Status Federal/ State/CDFW	General Habitat Description	Habitat Present/ Absent	Rationale
California horned lark	*Eremophila alpestris actia*	-- / -- / WL	Coastal regions, chiefly from Sonoma County to San Diego. Also occurs in main part of San Joaquin Valley and east to foothills. Short-grass prairie, "bald" hills, mountain meadows, open coastal plains, fallow grain fields, alkali flats.	P	**Possible**: While no California horned larks or their sign were observed, marginal habitat for California horned lark occurs in grasslands adjacent to the well pads. Avoidance and minimization measures are recommended.
prairie falcon	*Falco mexicanus*	-- / -- / WL	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs, forages far afield, even to marshlands and ocean shores.	A (nesting)	**Unlikely**: No suitable nesting habitat conditions are present in the BSA for this species. Prairie falcons may forage in the hills adjacent to the BSA but are not expected to be impacted by the proposed project.
bald eagle	*Haliaeetus leucocephalus*	FD, BGEPA / SE, FP / --	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests are within 1 mile of water. Nests in large, old-growth or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.	A (nesting or roosting)	**Unlikely**: No suitable nesting or roosting habitat conditions are present in the BSA for this species. Bald eagles may forage in the hills adjacent to the BSA but are not expected to be impacted by the proposed project.
loggerhead shrike	*Lanius ludovicianus*	-- / -- / SSC	Broken woodlands, savannah, pinyon-juniper, Joshua tree, riparian areas, desert oases, and scrub and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	P	**Present**: An adult and juvenile loggerhead shrike were observed in the vicinity of a toyon shrub located over 200 feet west of the well pads. It's possible that the toyon could have been a nesting location although no nest could be confirmed. Avoidance and minimization measures are recommended.

Common Name	Scientific Name	Status Federal/ State/CDFW	General Habitat Description	Habitat Present/ Absent	Rationale
yellow warbler	*Setphaga petechia*	-- / -- / SSC	Riparian plant associates in close proximity to water. Also nests in montane shrubbery in open conifer forests in cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets, including in other riparian plants such as cottonwoods, sycamores, ash, and alders.	A	**Absent**: No suitable nesting habitat conditions are present in the BSA for this species.
least Bell's vireo	*Vireo bellii pusillus*	FE, CH / SE / --	Summer resident of southern California in dense, low growing riparian in vicinity of water or in dry river bottoms below 2,000 feet. Nests are placed along margins of bushes or on twigs projecting into pathways, usually willows.	A	**Absent**: No suitable nesting habitat conditions are present in the BSA for this species.
Other migratory bird species (nesting)	Class Aves	MBTA / CFGC / --	Annual grasslands, coastal scrub, oak woodlands, and landscaped areas may provide nesting habitat.	P	**Possible:** No nesting habitat occurs within the footprint of the two well pads, but potential nesting habitat occurs in annual grasslands and a toyon shrub in other areas of the BSA. Avoidance and minimization measures are recommended.
Mammals					
pallid bat	*Antrozous pallidus*	-- / -- / SSC	Occurs in deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	P	**Possible:** Signs of bat roosts were observed in openings in the side of a hill located over 300 feet east of the well pads. These roosts are likely located far enough away from the proposed project activities to avoid any project-related impacts.

Common Name	Scientific Name	Status Federal/ State/CDFW	General Habitat Description	Habitat Present/ Absent	Rationale
Townsend's big-eared bat	*Corynorhinus townsendii*	-- / -- / SSC	Occurs throughout California in a wide variety of habitats. It is most common in mesic sites. It roosts in the open, hanging from walls and ceilings. Roosting sites are limited because it is extremely sensitive to human disturbance.	P	**Possible:** Signs of bat roosts were observed in openings in the side of a hill located over 300 feet east of the well pads. These roosts are likely located far enough away from the proposed project activities to avoid any project-related impacts.
hoary bat	*Lasiurus cinereus*	-- / -- / SA	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	P	**Possible:** Signs of bat roosts were observed in openings in the side of a hill located over 300 feet east of the well pads. These roosts are likely located far enough away from the proposed project activities to avoid any project-related impacts.
Salinas pocket mouse	*Perognathus inornatus psammophilus*	-- / -- / SSC	Occurs in annual grassland and desert shrub communities in the Salinas Valley. It prefers fine-textured, sandy, friable soils, burrows for cover and nesting.	P	**Possible:** Suitable habitat occurs in grasslands adjacent to the BSA but no small mammal burrows were observed within the footprint of the proposed project and this species is not expected to be impacted by the proposed project.
San Joaquin kit fox	*Vulpes macrotis mutica*	FE / ST / --	Currently occur in remaining native valley and foothill grasslands and saltbush scrub communities of valley floor and surrounding foothills from southern Kern County north to Merced County.	P	**Possible:** Suitable habitat occurs in grasslands adjacent to the BSA but no potential dens were observed within the footprint of the proposed project or in adjacent grasslands. Avoidance and minimization measures are recommended.
American badger	*Taxidea taxus*	-- / -- / SSC	Prefers drier open stages of most shrub, forest, and herbaceous habitats in friable soils. Preys on burrowing rodents and needs open, uncultivated ground with a sufficient food source. Also digs burrows.	P	**Possible:** Suitable habitat occurs in grasslands adjacent to the BSA but no potential dens were observed within the footprint of the proposed project or in adjacent grasslands. Avoidance and minimization measures are recommended.

General References:

CNDDB RareFind 9 quad search centered on BSA (accessed July 2022).

Status Codes:

No status (--); Federal Endangered (FE); Federal Threatened (FT); Federal Proposed Endangered (FPE); Federal Proposed Threatened (FPT); Federal Candidate (FC); Federal Delisted (FD); Critical Habitat designated (CH); Bald and Golden Eagle Protection Act (BGEPA); Migratory Bird Treaty Act (MBTA); State Endangered (SE); State Threatened (ST); State Candidate (SC); State Fully Protected Species (FP); CDFW California Special Concern Species (SSC); CA Fish and Game Code Sections 3503 and 3503.5 (CFGC); Included in CDFW “Special Animal” List (SA); Included in CDFW “Watch List” (WL).

6.0 IMPACT ASSESSMENT

6.1 IMPACTS TO VEGETATION/HABITATS

All direct impacts will be confined to the two previously disturbed existing well pads; there will be no direct impacts to adjacent non-native annual grassland vegetation.

6.2 SPECIAL-STATUS PLANTS

No special-status plants were observed within the BSA during the reconnaissance survey conducted in July 2022. While only a reconnaissance survey was conducted, no special-status plant species are expected to occur within the previously disturbed footprint of the two well pads where the project is proposed.

6.3 SPECIAL-STATUS ANIMALS

Based on a CNDDB record search, the following special-status animal species were determined to have suitable habitat within the BSA and could be potentially impacted by the project: burrowing owl (*Athene cunicularia*), California horned lark (*Eremophila alpestris actia*), loggerhead shrike, other migratory bird species protected by the MBTA and CFGC, San Joaquin kit fox (*Vulpes macrotis mutica*), and American badger (*Taxidea taxus*). These species have the capability to nest or burrow/den in grasslands (or in the case of the loggerhead shrike, in the lone toyon shrub) adjacent to the well pads where the proposed project would be implemented; this potential is estimated to be low based on the routine disturbances in the San Ardo oilfield, but remains possible. Although no direct impacts to nesting, burrowing, or denning habitat would occur that could potentially result in injury or mortality to these species, the noise, lighting, and other disturbances associated with construction of the new wells and their ongoing operations could potentially indirectly impact nesting, burrowing, denning, foraging, and or breeding behaviors with the risk of nest, burrow, and/or den abandonment.

7.0 AVOIDANCE AND MINIMIZATION MEASURES

Implementation of the proposed Project will result in impacts to previously disturbed well pads in the San Ardo oilfield. Adjacent areas may have a low but possible potential to support certain special-status species. The following avoidance and minimization measures (AMMs) are proposed to further reduce Project impacts to biological resources before, during, and after project implementation. These measures represent conservative guidelines in terms of minimizing impacts to vegetation, jurisdictional waters, and wildlife due to construction activities.

BIO-1. Worker Environmental Awareness Program (WEAP): A qualified biologist shall prepare a WEAP. Employees and supervising staff working on the Project shall participate in an initial program session provided by a qualified biologist prior to initiation of construction activity. At a

minimum, the program shall cover the general behavior and ecology of the pertinent special-status species with potential to be in the project area, legal protection, penalties for federal and state law violations, and protective measures. A fact sheet/brochure or PowerPoint presentation conveying this information shall be made available to on-site personnel, construction workers, staff involved in operations, and other individuals who may enter the Project Site. New employees shall receive the training prior to working on the active site, with training provided by a qualified biologist or a qualified biological monitor, or by viewing a PowerPoint presentation. Upon receiving the training, each trainee shall sign a record sheet verifying their participation in the training and acknowledging their environmental compliance responsibilities while working within the Project Site.

BIO-2. Conduct Pre-Construction Plant and Wildlife Surveys: Within 30 days prior to initiation of construction, a qualified biologist shall conduct a pre-construction survey of the two well pads plus a 200-meter buffer, to locate special-status resources on-site. Any special-status resources observed such as potential nests/burrows/dens/ for special-status species shall be marked with flagging and mapped with GPS. Special-status resources shall have avoidance buffers implemented; the appropriate size/radius of avoidance buffers shall be determined by a qualified biologist based on the species/resource and in compliance with any agency-required standards. Special-status resources that cannot be avoided shall be addressed with species-specific mitigation measures (detailed in various mitigation measures below). A preconstruction survey report shall be prepared by a qualified biologist and provided to Aera.

BIO-3. Implement Best Management Practices (BMPs): Aera shall implement the following BMPs as part of the project:

- Work area boundaries shall be delineated with flagging, temporary fencing, or other markers deemed warranted by a qualified biologist to minimize the potential for off-site impacts associated with potential vehicle straying. The work area shall be restricted to the two previously disturbed well pads and shall not encroach into adjacent grasslands.

- Project employees shall exercise caution when traveling or working within listed species' habitats. Off-road/cross-country travel by construction equipment and vehicles is prohibited unless specifically authorized by a qualified biologist. To minimize wildlife injury/mortality, the daytime speed limit on unpaved roads shall be a maximum of 20 miles per hour (mph).

- All vehicle/equipment operators shall check for wildlife under vehicles and equipment prior to operation. If wildlife is observed, vehicles and equipment will not be moved until observed wildlife move away on their own so that they are not under threat of injury/mortality, or a qualified biologist has relocated the wildlife out of harm's way; relocations for sensitive species may require regulatory agency review/approval.

- All excavation, steep-walled holes or trenches in excess of 2 feet in depth shall be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earthen material or wooden planks.

Trenches shall also be inspected for entrapped wildlife each morning prior to onset of construction activities and immediately prior to covering with plywood at the end of each working day. Before such holes or trenches are filled, they shall be thoroughly inspected for entrapped wildlife. Any wildlife discovered shall be allowed to escape before construction activities are allowed to resume or removed from the trench or hole by a qualified biologist holding the appropriate permits (if required).

- If any lighting is used during construction, it shall be directed toward the work areas in the two previously disturbed well pads and avoid direct illumination toward adjacent grasslands where special-status species could occur.
- The construction contractor shall have hazardous materials spill and containment kits kept on-site at all times to be immediately deployed if necessary. All releases of potentially hazardous materials will be contained closest to the source site as possible. The released materials will be cleaned up by the contractor immediately and disposed of properly. If a release of potentially hazardous materials occurs within special-status species habitat, a qualified biologist will be contacted immediately and a qualified biologist and/or biological monitor will monitor cleanup and containment. The appropriate regulatory agencies will be notified of the release of potentially hazardous materials and the remedial action taken by the contractor as soon as possible, but not later than 24 hours after the release occurs or is discovered. Within 30 days of completing cleanup activities, a compliance report will be submitted by a qualified biologist/biological monitor to the involved regulatory agencies.
- Trash and food items shall be contained in closed, wildlife-proof containers and removed weekly at a minimum from the Project Site.
- Firearms and pets shall be prohibited from the Project Site.

BIO-4. Burrowing Owl Pre-Construction Surveys: Prior to construction and no more than 14 days prior to ground-disturbing activities, a qualified biologist shall conduct preconstruction surveys of all areas with suitable habitat that will be permanently or temporarily impacted plus a 200-meter buffer, to locate active breeding or wintering burrowing owl burrows. The survey methodology shall be consistent with the take avoidance survey methods outlined in the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012).

If burrowing owls are detected on-site during preconstruction surveys or during construction, no ground-disturbing activities within a minimum 200-meter avoidance buffer shall occur around occupied burrows during the breeding season (February 1 to August 31), unless authorized by CDFW. During the non-breeding season (September 1 to January 31), no ground-disturbing activities within a minimum 50-meter avoidance buffer shall occur around occupied burrows, unless authorized by CDFW.

BIO-5. Nesting Bird Avoidance and Minimization Measures: If any construction activities are proposed to occur during the typical nesting season (February 15 to September 15), a nesting

bird survey of the project site and a 300-foot radius will be conducted by a qualified biologist no more than 14 days prior to construction to determine presence/absence of raptors and other nesting birds. If breeding birds with active nests are found prior to or during construction, a qualified biological monitor will establish an appropriate buffer based on existing conditions around the nest, planned construction activities, tolerance of the species, and other pertinent factors. The qualified biologist will conduct regular monitoring of the nest to determine success/failure and to ensure that Project activities are not conducted within the buffer(s) until the nesting cycle is complete or nesting activity ceases.

BIO 6. San Joaquin Kit Fox/American Badger Pre-construction Surveys. Mitigation measures follow the USFWS *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance. U.S. Fish and Wildlife Service Sacramento Field Office* (USFWS 2011).

Pre-construction/pre-activity surveys shall be conducted by a qualified biologist no less than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities. Surveys should identify kit fox habitat features on the project site and evaluate use by kit fox and, if possible, assess the potential impacts to the kit fox by the proposed activity. The status of all dens should be determined and mapped per USFWS (2011). Written results of pre-construction/pre-activity surveys must be submitted to USFWS within five days after survey completion and prior to the start of ground disturbance and/or construction activities.

If a natal/pupping kit fox den is discovered within the project area or within 200-feet of the project boundary, the USFWS shall be immediately notified and under no circumstances should the den be disturbed or destroyed without prior authorization. If the pre-construction/pre-activity survey reveals an active natal pupping or new information, Aera should contact USFWS immediately to obtain the necessary take authorization/permit.

Badger surveys shall be conducted in the same manner as described above, except if potential badger dens are observed, Aera shall coordinate with CDFW instead of USFWS, as American badger is considered a CDFW SSC and is not a federally listed species.

8.0 REFERENCES

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, D.H. Wilken (eds.) 2012. The Jepson Manual: Vascular Plants of California, 2nd ed. University Press, Berkeley, California.

CalFlora. 2022. CalFlora observation search for *Chorizanthe xanti* var. *leucotheca*. Online: https://www.calflora.org/entry/observ.html?track=m#srch=t&cols=0,3,61,35,37,13,54,32,41&lpcli=t&taxon=Chorizanthe+xanti+var.+leucotheca&chk=t&cch=t&inat=r&cc=SBD. Accessed July 2022.

Cal-IPC (California Invasive Plant Council). 2022. California Invasive Plant Inventory Database. Cal-IPC, Berkeley, California. Online: http://www.cal-ipc.org/ip/inventory/. Accessed July 2022.

CDFG (California Department of Fish and Game). 2012. Staff Report on Burrowing Owl Mitigation. State of California, Natural Resources Agency, Department of Fish and Game. March 7, 2012.

CDFW (California Department of Fish and Wildlife). 2018. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities. State of California, California Natural Resources Agency, Department of Fish and Wildlife. March 20, 2018.

_____. 2022a. Special Animals List. State of California. Natural Resources Agency; Department of Fish and Wildlife; Biogeographic Data Branch; California Natural Diversity Database. July 2022.

_____. 2022b. California Natural Community List. Online: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153398&inline. Accessed July 2022.

CNDDB (California Natural Diversity Data Base). 2022. Rarefind data output for Wunpost, CA USGS quadrangle and eight surrounding quadrangles. California Department of Fish and Wildlife. Sacramento, California. Government Version -- Dated July 1, 2022 -- Biogeographic Data Branch.

CNPS (California Native Plant Society). 2022. Inventory of rare and endangered plants (online). California Native Plant Society. Sacramento. Online: https://rareplants.cnps.org/. Accessed July 2022.

NRCS (Natural Resource Conservation Service). 2022. Web Soil Survey 2.0. Online: https://websoilsurvey.sc.egov.usda.gov/. Accessed July 2022.

Sawyer, J.O., T. Keeler-Wolf and J.M. Evens. 2009. Manual of California Vegetation, Second Edition. California Native Plant Society, Sacramento, California.

USFWS (United States Fish and Wildlife Service). 2000. Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants. January 2000.

———. 2022. NWI GIS data. Online: https://www.fws.gov/wetlands/data/data-download.html. Accessed July 2022.

USGS (U.S. Geological Survey). 2022. Online: https://www.usgs.gov/core-science-systems/ngp/national-hydrography/national-hydrography-dataset?qt-science_support_page_related_con=0#qt-science_support_page_related_con. Accessed July 2022.

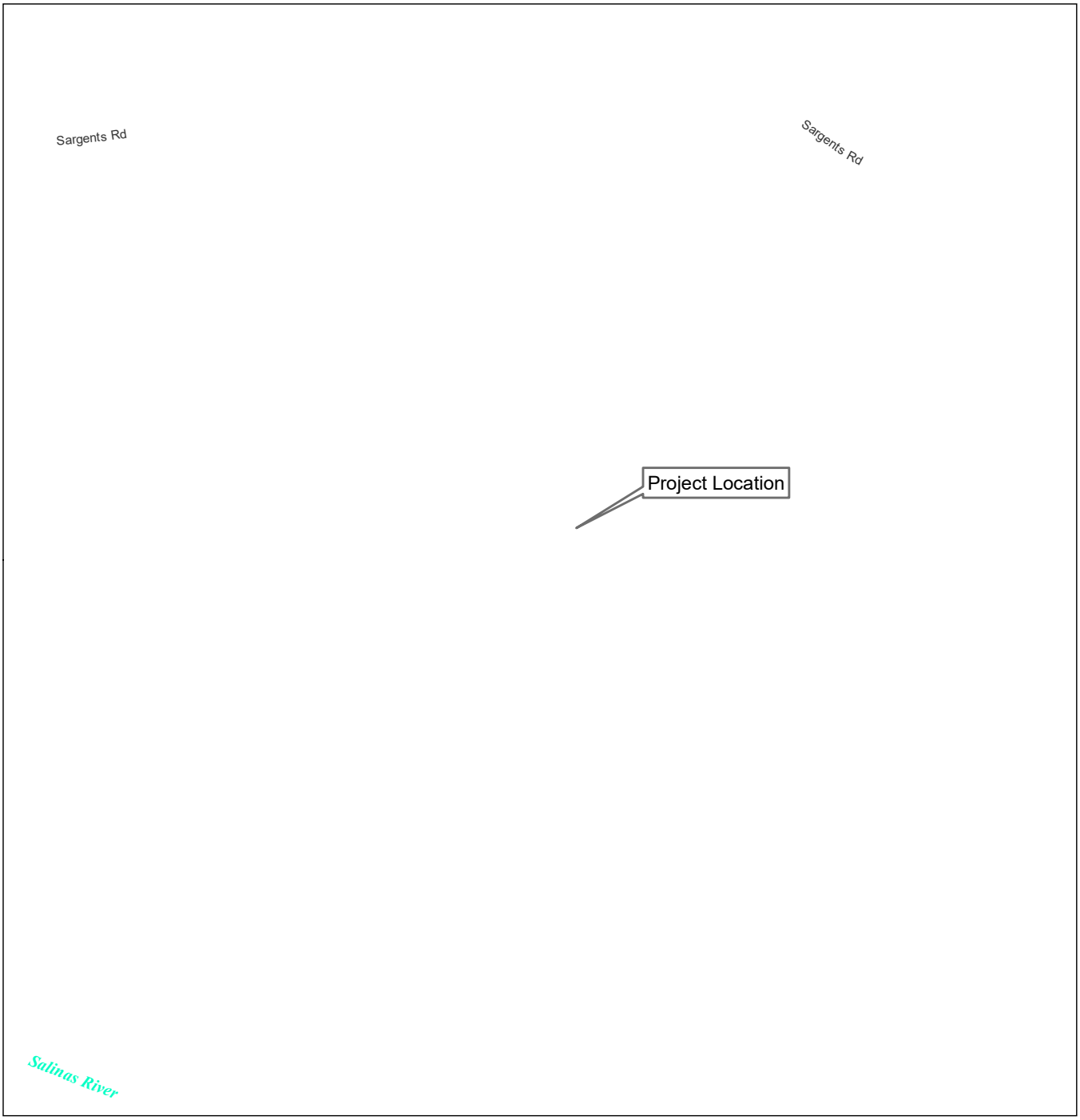
APPENDICIES

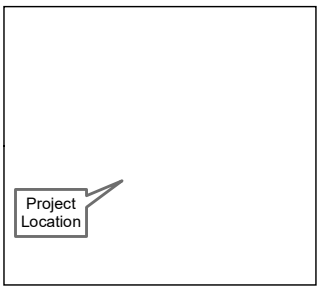
Appendix A FIGURES

BIOLOGICAL RESOURCES TECHNICAL REPORT FOR SAN ARDO 2022 WELL DRILLING PACKAGE, SAN ARDO OIL FIELD, MONTEREY COUNTY, CALIFORNIA

Appendix A Figures
August 19, 2022

Stantec





Project Location

0 1,000 2,000 Feet

(At original document size of 8.5x11)
1:24,000

N

Stantec

Project Location	Prepared by DL on 2022-08-19
San Ardo Oil Field	TR by SET on 2022-08-19
Monterey County, California	IR by GH on 2022-08-19

Client/Project 185805701
Aera Energy LLC
San Ardo 2022 Well Drilling Package
Biological Resources Technical Report

Figure No.
1

Title
Project Location

Notes
1. Coordinate System: NAD 1983 StatePlane California IV FIPS 0404 Feet
2. Data Sources: Stantec 2022.
3. Background: Sources: Esri, GEBCO, NOAA, National Geographic, Garmin, HERE, Geonames.org, and other contributors
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

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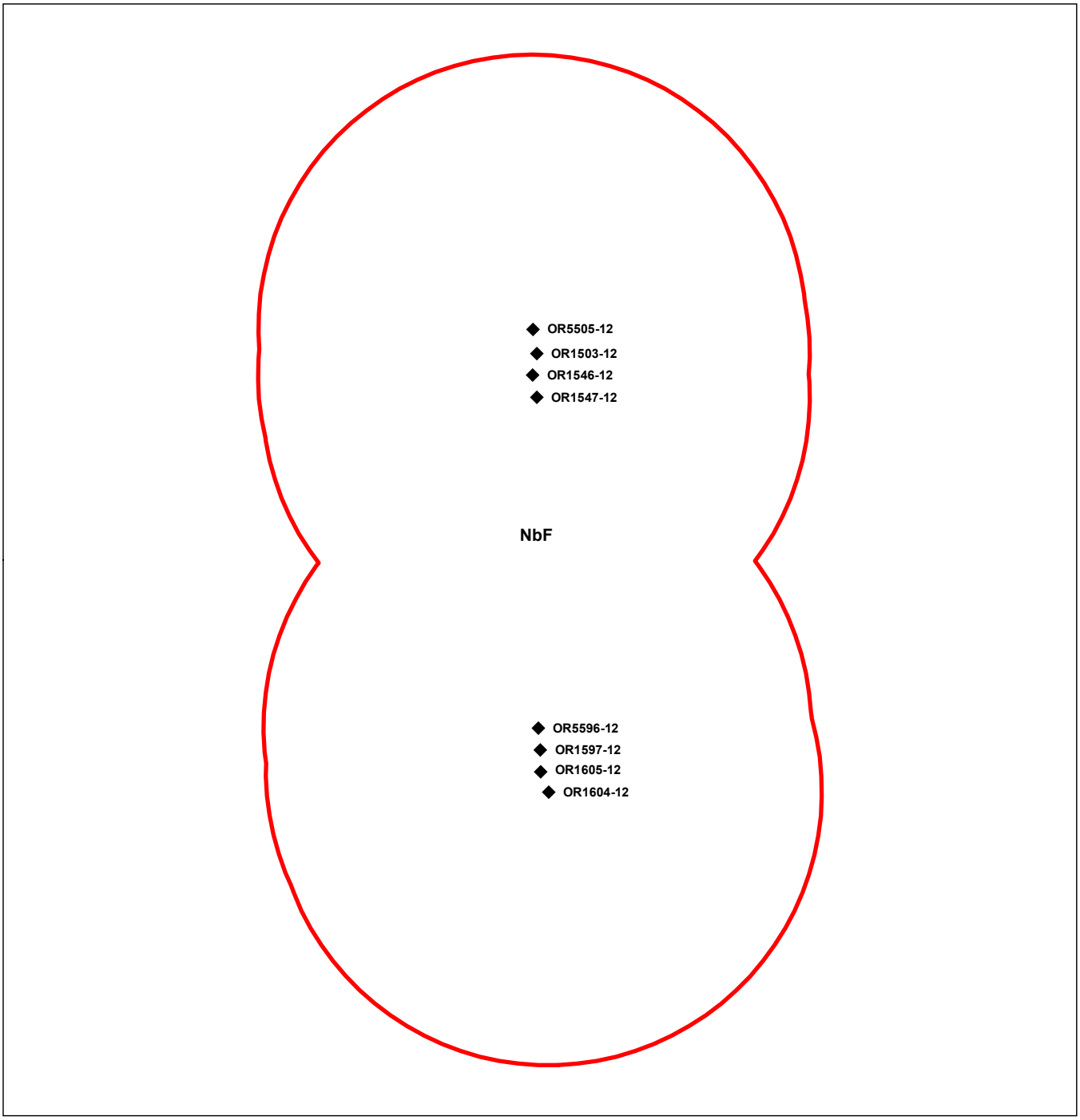


Biological Study Area [36.598 ac.]

S20-SA-B-SHL Well Locations

Soils Map Unit Symbol

NbF: Nacimiento-Los Osos complex, 30 to 50 percent slopes, MLRA 15

0 140 280 Feet

(At original document size of 8.5x11)
1:3,360

N

Stantec

Project Location
San Ardo Oil Field
Monterey County, California

Prepared by DL on 2022-08-19
TR by SET on 2022-08-19
IR by GH on 2022-08-19

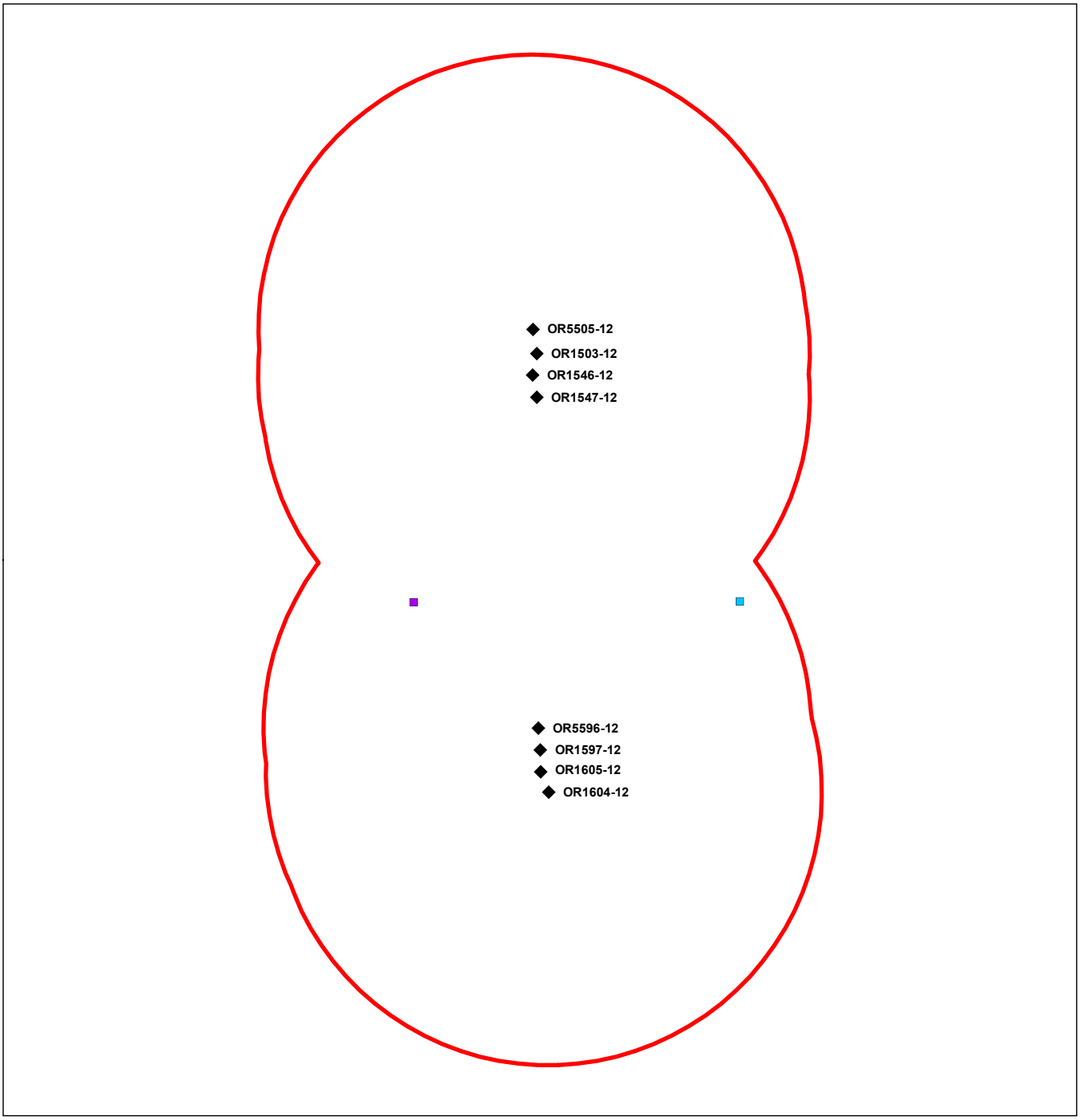
Client/Project 185805701
Aera Energy LLC
San Ardo 2022 Well Drilling Package
Biological Resources Technical Report

Figure No.
2

Title
Historical Soils

Notes
1. Coordinate System: NAD 1983 StatePlane California IV FIPS 0404 Feet
2. Data Sources: Stantec 2022.
3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

V:\1858\Active\185805xxxx_Aera\03_data\gis_cad\gis\185805xxxx_SanArdoIBRTR_Figure2_SoilsMap_20220817.mxd Revised: 2022-08-18 By: Dalaw



Biological Study Area [36.598 ac.]
S20-SA-B-SHL Well Locations
Loggerhead Shrike Observation
Potential Bat Roost Observation

Vegetation Communities and Land Cover Types

Avena spp. – *Bromus* spp. Herbaceous Semi-Natural Alliance (Wild Oats and Annual Brome Grasslands) [28.323 ac.]
Ruderal/Disturbed [8.275 ac.]

0 140 280 Feet

(At original document size of 8.5x11)
1:3,360

N

Stantec

Project Location
San Ardo Oil Field
Monterey County, California

Prepared by DL on 2022-08-19
TR by SET on 2022-08-19
IR by GH on 2022-08-19

Client/Project
185805701
Aera Energy LLC
San Ardo 2022 Well Drilling Package
Biological Resources Technical Report

Figure No.
3

Title
Vegetation Communities and Land Cover Types

Notes
1. Coordinate System: NAD 1983 StatePlane California IV FIPS 0404 Feet
2. Data Sources: Stantec 2022.
3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

V:\1858\Active\185805xxxx_Aera\03_data\gis_cad\gis\185805xxxx_SanArdo\BRTR_Figure3_VegetationMap_20220817.mxd Revised: 2022-08-18 By: Dalaw

Appendix B CNDDB SPECIES LIST

BIOLOGICAL RESOURCES TECHNICAL REPORT FOR SAN ARDO 2022 WELL DRILLING PACKAGE, SAN ARDO OIL FIELD, MONTEREY COUNTY, CALIFORNIA

Appendix B CNDDB Species List
August 19, 2022

Stantec

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Wunpost (3512087) OR Hames Valley (3512088) OR San Ardo (3612018) OR Pancho Rico Valley (3612017) OR Slack Canyon (3612016) OR Valleton (3512086) OR San Miguel (3512076) OR Bradley (3512077) OR Tierra Redonda Mountain (3512078))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S1S2	SSC
Ambystoma californiense pop. 1 California tiger salamander - central California DPS	AAAAA01181	Threatened	Threatened	G2G3T3	S3	WL
Anniella pulchra Northern California legless lizard	ARACC01020	None	None	G3	S3	SSC
Antrozous pallidus pallid bat	AMACC10010	None	None	G4	S3	SSC
Aquila chrysaetos golden eagle	ABNKC22010	None	None	G5	S3	FP
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Aristocapsa insignis Indian Valley spineflower	PDPGN0U010	None	None	G1	S1	1B.2
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Buteo regalis ferruginous hawk	ABNKC19120	None	None	G4	S3S4	WL
Calochortus simulans La Panza mariposa-lily	PMLIL0D170	None	None	G2	S2	1B.3
Calycadenia villosa dwarf calycadenia	PDAST1P0B0	None	None	G3	S3	1B.1
Camissoniopsis hardhamiae Hardham's evening-primrose	PDONA030N0	None	None	G2	S2	1B.2
Castilleja densiflora var. obispoensis San Luis Obispo owl's-clover	PDSCR0D453	None	None	G5T2	S2	1B.2
Caulanthus lemmonii Lemmon's jewelflower	PDBRA0M0E0	None	None	G3	S3	1B.2
Chlorogalum purpureum var. purpureum Santa Lucia purple amole	PMLIL0G051	Threatened	None	G2T2	S2	1B.1
Chorizanthe pungens var. pungens Monterey spineflower	PDPGN040M2	Threatened	None	G2T2	S2	1B.2
Chorizanthe rectispina straight-awned spineflower	PDPGN040N0	None	None	G2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Clarkia jolonensis Jolon clarkia	PDONA050L0	None	None	G2	S2	1B.2
Collinsia antonina San Antonio collinsia	PDSCR0H010	None	None	G2	S2	1B.2
Collinsia multicolor San Francisco collinsia	PDSCR0H0B0	None	None	G2	S2	1B.2
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G4	S2	SSC
Delphinium umbraculorum umbrella larkspur	PDRAN0B1W0	None	None	G3	S3	1B.3
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Entosthodon kochii Koch's cord moss	NBMUS2P050	None	None	G1	S1	1B.3
Eremophila alpestris actia California horned lark	ABPAT02011	None	None	G5T4Q	S4	WL
Eriastrum luteum yellow-flowered eriastrum	PDPLM03080	None	None	G2	S2	1B.2
Eriogonum temblorense Temblor buckwheat	PDPGN085P0	None	None	G2	S2	1B.2
Erythranthe hardhamiae Santa Lucia monkeyflower	PDPHR01030	None	None	G1	S1	1B.1
Falco mexicanus prairie falcon	ABNKD06090	None	None	G5	S4	WL
Haliaeetus leucocephalus bald eagle	ABNKC10010	Delisted	Endangered	G5	S3	FP
Horkelia cuneata var. sericea Kellogg's horkelia	PDROS0W043	None	None	G4T1?	S1?	1B.1
Juncus luciensis Santa Lucia dwarf rush	PMJUN013J0	None	None	G3	S3	1B.2
Lagophylla diabolensis Diablo Range hare-leaf	PDAST5J060	None	None	G2	S2	1B.2
Lasiurus cinereus hoary bat	AMACC05030	None	None	G3G4	S4	
Lavinia exilicauda harengus Monterey hitch	AFCJB19013	None	None	G4T3	S3	SSC
Layia heterotricha pale-yellow layia	PDAST5N070	None	None	G2	S2	1B.1
Malacothamnus abbottii Abbott's bush-mallow	PDMAL0Q010	None	None	G1	S1	1B.1
Malacothamnus aboriginum Indian Valley bush-mallow	PDMAL0Q020	None	None	G3	S3	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Malacothamnus davidsonii Davidson's bush-mallow	PDMAL0Q040	None	None	G2	S2	1B.2
Malacothamnus palmeri var. involucratus Carmel Valley bush-mallow	PDMAL0Q0B1	None	None	G3T2Q	S2	1B.2
Masticophis flagellum ruddocki San Joaquin coachwhip	ARADB21021	None	None	G5T2T3	S2?	SSC
Navarretia nigelliformis ssp. radians shining navarretia	PDPLM0C0J2	None	None	G4T2	S2	1B.2
Navarretia prostrata prostrate vernal pool navarretia	PDPLM0C0Q0	None	None	G2	S2	1B.2
Nemacladus secundiflorus var. robbinsii Robbins' nemacladus	PDCAM0F0B2	None	None	G3T2	S2	1B.2
Perognathus inornatus psammophilus Salinas pocket mouse	AMAFD01062	None	None	G2G3T2?	S1	SSC
Phrynosoma blainvillii coast horned lizard	ARACF12100	None	None	G3G4	S3S4	SSC
Plagiobothrys uncinatus hooked popcornflower	PDBOR0V170	None	None	G2	S2	1B.2
Rana boylii foothill yellow-legged frog	AAABH01050	None	Endangered	G3	S3	SSC
Setophaga petechia yellow warbler	ABPBX03010	None	None	G5	S3S4	SSC
Spea hammondii western spadefoot	AAABF02020	None	None	G2G3	S3	SSC
Stebbinsoseris decipiens Santa Cruz microseris	PDAST6E050	None	None	G2	S2	1B.2
Stylocline masonii Mason's neststraw	PDAST8Y080	None	None	G1	S1	1B.1
Sycamore Alluvial Woodland Sycamore Alluvial Woodland	CTT62100CA	None	None	G1	S1.1	
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Valley Oak Woodland Valley Oak Woodland	CTT71130CA	None	None	G3	S2.1	
Vireo bellii pusillus least Bell's vireo	ABPBW01114	Endangered	Endangered	G5T2	S2	
Vulpes macrotis mutica San Joaquin kit fox	AMAJA03041	Endangered	Threatened	G4T2	S2	

Record Count: 58

Appendix C SITE PHOTOGRAPHS

BIOLOGICAL RESOURCES TECHNICAL REPORT FOR SAN ARDO 2022 WELL DRILLING PACKAGE, SAN ARDO OIL FIELD, MONTEREY COUNTY, CALIFORNIA

Appendix C Site Photographs
August 19, 2022

Stantec

Photographic Log

Client:	**Aera Energy LLC**	**Project:**	**San Ardo 2022 Well Drilling Package**
Site Location:	**San Ardo Oil Field, Monterey County, California**		

Photograph ID: 1 **Photo Location:** Toward center of northern well pad. **Direction:** North **Survey Date:** 7/13/2022 **Comments:** View north from northern well pad.	
Photograph ID: 2 **Photo Location:** Toward center of northern well pad. **Direction:** East **Survey Date:** 7/13/2022 **Comments:** View east from northern well pad. Note adjacent grasslands.	

Client:	**Aera Energy LLC**	**Project:**	**San Ardo 2022 Well Drilling Package**
Site Location:	**San Ardo Oil Field, Monterey County, California**		

Photograph ID: 3 **Photo Location:** Toward center of northern well pad. **Direction:** South **Survey Date:** 7/13/2022 **Comments:** View south from northern well pad.	
Photograph ID: 4 **Photo Location:** Toward center of northern well pad. **Direction:** West **Survey Date:** 7/13/2022 **Comments:** View west from northern well pad.	

Client:	**Aera Energy LLC**	**Project:**	**San Ardo 2022 Well Drilling Package**
Site Location:	**San Ardo Oil Field, Monterey County, California**		

Photograph ID: 5 **Photo Location:** Toward center of southern well pad. **Direction:** North **Survey Date:** 7/13/2022 **Comments:** View north from southern well pad.	
Photograph ID: 6 **Photo Location:** Toward center of southern well pad. **Direction:** East **Survey Date:** 7/13/2022 **Comments:** View east from southern well pad.	

Client:	**Aera Energy LLC**	**Project:**	**San Ardo 2022 Well Drilling Package**
Site Location:	**San Ardo Oil Field, Monterey County, California**		

Photograph ID: 7 **Photo Location:** Toward center of southern well pad. **Direction:** South **Survey Date:** 7/13/2022 **Comments:** View south from southern well pad.	
Photograph ID: 8 **Photo Location:** Toward center of southern well pad. **Direction:** West **Survey Date:** 7/13/2022 **Comments:** View west from southern well pad.	

Client:	**Aera Energy LLC**	**Project:**	**San Ardo 2022 Well Drilling Package**
Site Location:	**San Ardo Oil Field, Monterey County, California**		

Photograph ID: 9 **Photo Location:** Grasslands west of well pads. **Direction:** Southeast **Survey Date:** 7/13/2022 **Comments:** Example of grasslands west of well pads.	
Photograph ID: 10 **Photo Location:** Hillside east of well pads. **Direction:** East **Survey Date:** 7/13/2022 **Comments:** Openings in hillside east of well pads supporting bat roosts.	

Client:	**Aera Energy LLC**	**Project:**	**San Ardo 2022 Well Drilling Package**
Site Location:	**San Ardo Oil Field, Monterey County, California**		

Photograph ID: 11 **Photo Location:** West of well pads. **Direction:** North **Survey Date:** 7/13/2022 **Comments:** Toyon shrub located west of well pads providing cover for loggerhead shrikes.	
Photograph ID: 12 **Photo Location:** Hillside adjacent to toyon shrub. **Direction:** East **Survey Date:** 7/13/2022 **Comments:** Loggerhead shrike perching on dead shrub (red arrow).	

Appendix D – Cultural Resources Report

Cultural Resources Inventory for the San Ardo Oil Field Modernization Project, Monterey County, California

Damon M. Haydu

Prepared By

Applied EarthWorks, Inc.
743 Pacific Street, Suite A
San Luis Obispo, California 93401

Prepared For
Padre Associates, Inc.
Attn: Eric Snelling
369 Pacific Street
San Luis Obispo, California 93401

February 2011

Wunpost 7.5-min. quad
2,200-acres
Results: 1 historic-period corral (AE-2149-1H)

MANAGEMENT SUMMARY

Aera Energy LLC (Aera) leases approximately 4,800 acres at the San Ardo Oil Field for oil and gas production. Of the 4,800 acres, approximately 2,200 acres lie within the oil field boundaries. Aera operates the oil and gas production facilities under a Conditional Use Permit from the County of Monterey. The 1980 Conditional Use Permit conditions of approval require that Aera complete archaeological surveys prior to the initiation of new well pad construction. Aera is planning a modernization project that will include the creation of new oil well pads throughout its leased area. This report documents the efforts of Applied EarthWorks, Inc. (Æ) to identify and record cultural resources in the project area, gather information to determine if the proposed project will have an adverse effect on any cultural resources identified, and recommend procedures for avoidance or mitigation of adverse effects.

Æ staff obtained a records search on December 2, 2010 from the Northwest Information Center of the California Historical Resources Information System, which is housed at Sonoma State University, Rohnert Park, California. The records search revealed that 14 previous studies have been conducted within the project area and four previous studies have been conducted within 0.25 mile of the project area. The records search also identified one prehistoric archaeological site, CA-MNT-2259, within the 2,200-acre project area. CA-MNT-2259 is described as a sparse lithic scatter located at the entrance of an unnamed canyon on the south side of Sargent Canyon.

Between December 6 and 17, 2010, Æ archaeologists conducted a pedestrian field survey of the 2,200-acre project site. The survey resulted in the identification and recording of one historic-period corral (AE-2149-1H). An exhaustive survey of the location of CA-MNT-2259 failed to identify any cultural material. No other cultural resources were observed.

The historic-period corral will be avoided by any ground disturbance associated with the San Ardo Oil Field improvements. In the event that AE-2149-1H cannot be avoided by impacts related to future oil field improvements, the corral should be formally evaluated under California Environmental Quality Act guidelines using the criteria of the California Register of Historic Resources. Protocols to follow in the event of a discovery during project implementation are provided at the conclusion of this report.

Photographs and field notes are on file at Applied EarthWorks office in San Luis Obispo, California. A copy of this report will be transmitted to the Northwest Information Center at Sonoma State University.

CONTENTS

APPENDICES

FIGURES

TABLES

1
INTRODUCTION

1.1 PROJECT LOCATION AND DESCRIPTION

Aera Energy LLC (Aera) leases approximately 4,800 acres at the San Ardo Oil Field in southern Monterey County for oil and gas production (Figure 1-1). Of the 4,800 acres leased by Aera, approximately 2,200 acres lie within the active oil field boundaries. The oil field is located approximately 0.5 mile east of Highway 101, approximately 5 miles south of the town of San Ardo, as depicted on the Wunpost 7.5-minute U.S. Geological Survey quadrangle (Figure 1-2). Direct access to the oil fields is available via Alvarado Road (off Highway 101) and Sargent Canyon Road (a county road). The legal description of the project is Township 23S, Range 10E, Sections 1, 2, 11, 12, 14, and Township 23S, Range 11E, Sections 7 and 18, Mt. Diablo Base and Meridian.

The majority of the approximately 2,200-acre oil field consists of steep rolling hills (averaging 840 feet above mean sea level [amsl]) cut by deep gullies and intermittent washes, becoming more level near the center of Sargent Canyon (approximately 600 feet amsl). Very little of the area has remained untouched by oil drilling activity. Oil field equipment and support facilities including pumps at the well sites, power lines and poles, cables, fences, roads, and a series of pipelines of various sizes and in varying states of operation are present throughout the area (Figures 1-3 and 1-4). Only in the higher elevations in the eastern portion of the 2,200-acre area has there been a little less development. Aera intends to continue to improve the oil field's operation with new wells and pipeline alignments.

Aera operates the oil and gas production facilities under a 1980 Conditional Use Permit (CUP) from the County of Monterey. The 1980 CUP conditions of approval require that Aera complete archaeological surveys prior to the initiation of new well pad construction activities. Aera is planning a modernization project that will include the creation of new oil well pads throughout its leased area. Because construction will require authorizations associated with the Conditional Use Permit from Monterey County, the project is subject to the California Environmental Quality Act (CEQA). At the request of Eric Snelling, Senior Project Manager at Padre Associates, Inc., Applied EarthWorks, Inc. (Æ) conducted a cultural resources inventory in accordance with the requirements of the CUP to: (1) identify and record cultural resources in the project area, (2) gather information to determine if the proposed project will have an adverse effect on any cultural resources identified within the project area, and (3) recommend procedures for avoidance or mitigation of adverse effects to resources eligible for inclusion in the California Register of Historical Resources.

Æ Staff Archaeologist Damon Haydu, a Registered Professional Archaeologist (RPA), performed the background research and Native American consultation, supervised the pedestrian survey, and prepared this inventory report. Æ Principal Archaeologist Barry Price (RPA) served as project manager and technical reviewer. Personnel qualifications are provided in Appendix A.

Figure 1-1 Project area in San Ardo vicinity of Monterey County, California.

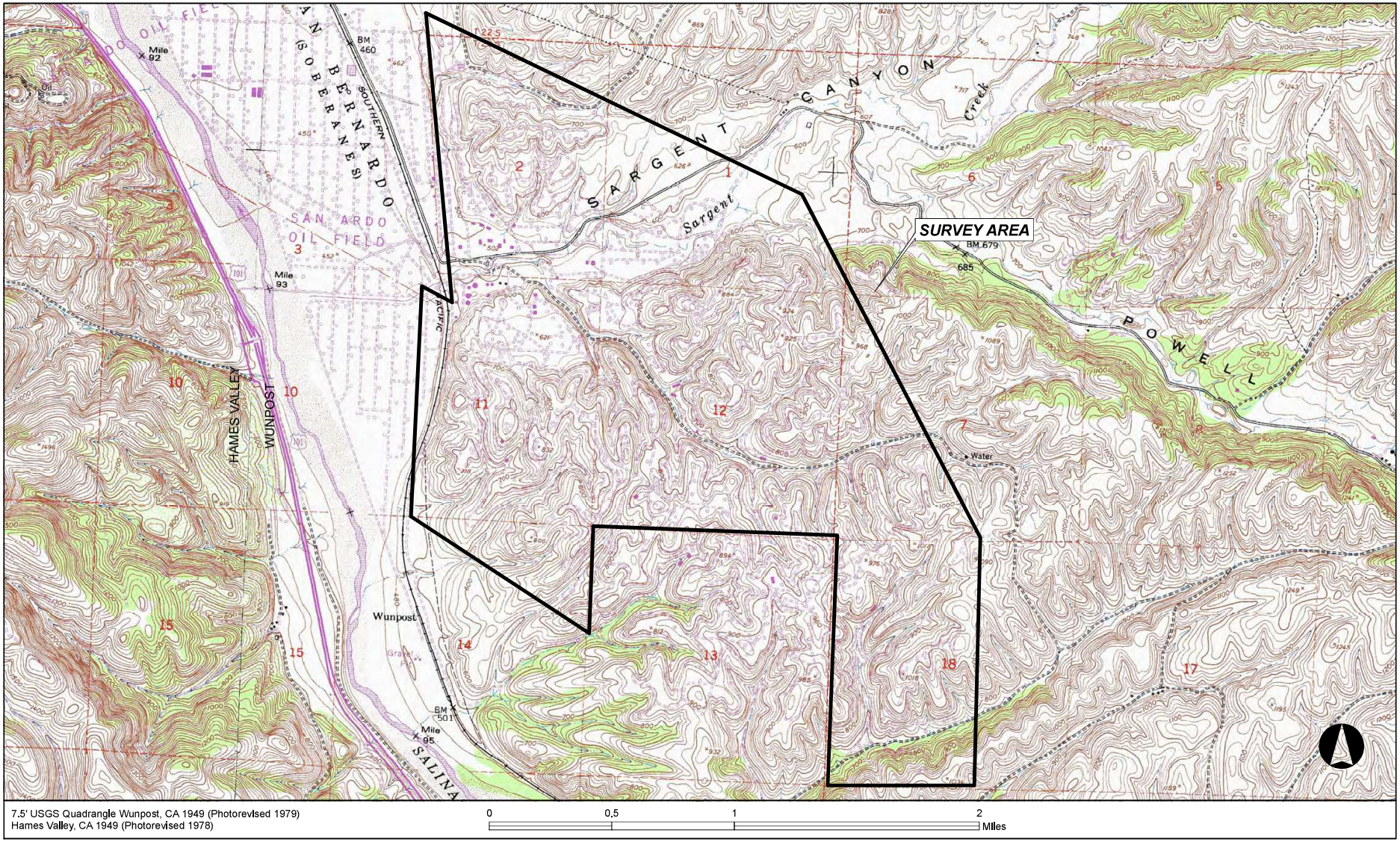


Figure 1-2 **Survey location shown on the Wunpost 7.5-minute topographic quadrangle.**

Figure 1-3 Overview of project area, facing north.

Figure 1-4 Overview of project area, facing west.

1.2 REGULATORY FRAMEWORK

Cultural resources are buildings, sites, structures, or objects which may have historical, architectural, archaeological, cultural, and/or scientific importance. Numerous laws, regulations, and statutes govern archaeological and historical resources, which are deemed to have scientific, historic, or cultural value. The pertinent regulatory framework, as it applies to the proposed project, is summarized below.

The CEQA, Public Resources Code (PRC) Section 21083.2, and Section 15064.5 of the CEQA Guidelines provide direction for assessing project impacts on significant archaeological and historical resources. A significant archaeological or historical resource is one that meets the criteria for listing on the California Register of Historical Resources, is included in a local register of historical resources, or is determined by the lead agency to be historically significant. A significant impact is characterized as a "substantial adverse change in the significance of a historical resource."

To be eligible for listing in the California Register, a property must meet one or more of the four criteria defined in PRC 5024.1 and CEQA Guidelines 15064.5(a), which are modeled on the National Register of Historic Places criteria:

(1) It is associated with events or patterns of events that have made a significant contribution to the broad patterns of the history and cultural heritage of California and the United States.

(2) It is associated with the lives of persons important to the nation or to California's past.

(3) It 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.

(4) It has yielded, or may be likely to yield, information important to the prehistory or history of the state and the nation.

In addition to meeting one or more of the above criteria, a significant property must also retain integrity. Properties eligible for listing in the California Register must retain enough of their historic character to convey the reason(s) for their significance. Integrity is judged in relation to a property's location, design, setting, materials, workmanship, feeling, and association.

While most historic buildings and many historic archaeological properties are significant because of their association with important events, people, or styles (Criteria 1, 2, and 3), the significance of most archaeological properties is assessed under Criterion 4. This criterion stresses the importance of the information contained in an archaeological site, rather than its intrinsic value as a surviving example of a type or its historical association with an important person or event. It places importance not on physical appearance but rather on information potential.

2
NATURAL AND CULTURAL SETTING

2.1 ENVIRONMENT

The San Ardo Oil Field is on the east side of the Salinas River at the southern terminus of the Salinas Valley, a 120-mile-long trough that reaches northwest to Monterey Bay and the Pacific Ocean. This valley is bounded by the Coast Ranges to the west and the Gabilan/Diablo Ranges to the east. The Salinas Valley is a rich agricultural region that supports row crops, vineyards, and livestock grazing. In addition, oil production historically has been a part of the local economy. The natural vegetation of the project area is California Prairie and Valley Oak Savanna (Küchler 1977:22–24). This vegetation community consists of tall, broad-leaved deciduous trees, widely spaced, with an understory of dense to somewhat open, medium tall bunchgrass and forb communities.

Most of the drainages in the project area are intermittent. The major drainage, running east-west through the northern half of the project area, is Sargent Creek which was dry at the time of the survey. Geology includes naturally occurring chert, sandstone, shale, serpentine, and assorted volcanic rocks and cobbles. Wildlife observed in the survey area includes red-tailed hawks, kites, raven, sparrows, and ground squirrel. Much of the project area today consists of grazing land, almond orchards, and development associated with the oil field operations.

2.2 PREHISTORY AND ARCHAEOLOGY

2.2.1 Early Holocene/Paleocoastal Period (Prior to 6500 B.C.)

Archaeological studies (Breschini and Haversat 1982; Gibson 1995; Greenwood 1972) have provided evidence of human occupation on the Central Coast and interior coastal valleys as early as 9,000 years ago. Moratto (1984) coined the term “Paleocoastal” to refer to the possible descendants of local Paleoindians who inhabited the coast and exploited marine resources prior to the Milling Stone Period (Erlandson 1994). This period has been described as a time of low population density, simple technology, and egalitarian social organization (Erlandson 1994). People appear to have subsisted largely on plants, shellfish, and some vertebrate species. The Paleoindian artifact assemblage is noted by diagnostic flaked stone tools and the absence of ground stone. Very few Paleocoastal sites have been identified, possibly due to the small population or loss through erosion and other natural forces (Colten 1997).

2.2.2 Milling Stone Period (6500–3500 B.C.)

During this period, people subsisted on a mixture of plant foods, shellfish, and a limited array of vertebrate species (Erlandson 1994). However, researchers working in other locations (Erlandson 1988, 1991; Glassow 1992; Jones et al. 1989:189; Wallace 1978) have reported differently on food preferences during the Milling Stone Period, which may reflect mobility between coastal and inland locations (Jones et al. 1994:189). The Milling Stone Period is defined by the prevalence of handstones and milling slabs, indicating a reliance on seeds and other plant foods.

Well-developed middens also have been associated with this period, suggesting more regular and continuous use of habitation sites (Breschini et al. 1983).

2.2.3 Early Period (3500–600 B.C.)

Cultural changes during the Early Period are thought to have occurred as a result of environmental shifts, rising sea levels, and an increase in the population base. The response to these changes by people of this period is evidenced by sites that appear more settled, but not permanent, with an increase in specialized sites for resource procurement activities such as hunting, fishing, and plant material processing (Jones et al. 1994:62; Jones and Waugh 1995:132). As a result of increased population, trade between regions expanded, as evidenced by the presence of exotic shell beads and obsidian materials (Jones et al. 1994). Like the Milling Stone Period, ground stone artifacts identified with the Early Period consist of handstones and milling slabs. Mortars and pestles were added toward the end of the period, probably indicating systematic exploitation of acorns (Glassow and Wilcoxon 1988).

2.2.4 Middle Period (600 B.C.–A.D. 1000)

The Middle Period is defined by the continued specialization in resource exploitation and increased technological complexity. Fish and acorns were predominant food sources, with a greater use of seasonal resources and the first attempts at food storage (Glassow and Wilcoxon 1988; King 1990). Although changes in ornaments and other artifacts suggest an increase in social complexity (King 1990), such complexity probably did not reach the levels attained in later prehistory (Arnold 1992; Jones and Waugh 1995). Continuation and expansion of trade is evident in the increased quantity and diversity of obsidian items and beads associated with this period. Like the Early Period, sites were occupied on a regular basis but not as permanent settlements. These habitation bases functioned in conjunction with smaller short-term locales used as specialized resource processing areas. Middle Period artifact assemblages include shell fishhooks, *Olivella* beads, and contracting stem projectile points.

2.2.5 Middle-Late Transitional Period (A.D. 1000–1250)

Social complexity became more noticeable during the Middle-Late Transitional Period, when most archaeologists believe craft specialization, increased political complexity, and social ranking developed (Arnold 1992). Settlement patterns shifted away from the coast, possibly reflecting a response to warmer temperatures and changes in available resources on the coast. The absence of imported obsidian after A.D. 1000 possibly reflects a change in trade relationships that is likely associated with the shift in settlement patterns (Jones et al. 1994). Middle-Late Transitional Period sites contain a mixture of earlier artifact types. However, the appearance of small leaf-shaped projectile points marks the arrival of the bow and arrow to the region (Jones et al. 2007).

2.2.6 Late Period (A.D. 1300–1769)

By the Late Period, the Salinan culture was probably very similar to what the Spanish observed when they arrived. The southern Chumash had developed a complex religious, social, and economic system. There are few records of Spanish encounters with the Chumash north of Point Conception (Glassow 1990), with the exception of the 1769 Portolá Expedition that made contact

at Avila Beach (Jones et al. 2007:129). Social and political structures continued to increase in complexity. Archaeological investigations indicate an increase in marine and terrestrial species and a change from residential to temporary camp use. Artifact assemblages from the Late Period contain arrow points, small bead drills, bedrock mortars, hopper mortars, *Olivella* beads, and steatite disk beads (Jones et al. 2007).

2.3 ETHNOGRAPHY

The project area was occupied by Salinan-speaking people north of their boundary with the Obispeño Chumash. Geographical information on territorial boundaries for these groups prior to the founding of the missions is scant (Kroeber 1976:546). Most information has been derived from mission records and historical accounts of the area by explorers and other travelers (Bouey and Basgall 1991:10; Grant 1978:505). In general, lands south and west of Santa Margarita, including San Luis Obispo, have been ascribed to the Obispeño Chumash (Greenwood 1978:520). Areas north of San Luis Obispo and south of Monterey are considered within the domain of the Salinans (Hester 1978:500; Kroeber 1976:546). Most of what is known about ethnographic settlement patterns has been interpreted from archaeological evidence. Fewer archaeological investigations have been done in Salinan territory than have been conducted in areas occupied by the Chumash.

Autonomous villages made up the Salinan's main sociopolitical structure (Hester 1978:502). Not much is known about village structures used by the Salinans since the population and lifestyle were dramatically reduced by the time ethnographers such as Kroeber and Harrington were conducting research on the California coast. The limited information available on Salinan lifeways is derived from Mission Period practices that indicate hunting and gathering existence. The primary plant food was acorns, and hunted game consisted of large and small mammals such as deer, bear, and rabbit (Hester 1978:501). However, prior to missionization, the Salinans probably used a diversity of maritime resources, as evidenced by C-shaped shell fishhooks, bone awls, notched pebble net sinkers, and other materials recovered from coastal Salinan sites.

The Salinan language belongs to the larger Hokan language stock (Hester 1978). The accounts of Spanish missionaries and linguistic data indicate that there were two major divisions of the Salinan language and territory, with possibly a third dialect. The northern area was associated with Mission San Antonio de Padua and the southern area associated with Mission San Miguel (Hester 1978:500). The territorial boundary between these two groups was the divide between the San Antonio and Naciamento rivers, just south of the San Ardo area. The two dialects were not very dissimilar and apparently mutually intelligible. The locations of settlements and village sites are inexact and conjectural because of incomplete historic records. The village of Tsho-hwal (*tsoxwal*) or Chohwahl is the closest tribelet or village location to the project area (Hester 1978:501). This village is situated just north of present-day Bradley, approximately 15 miles south of San Ardo. For a general overview of the Salinan see Hester (1978), Breschini et al. (1983), and Milliken and Johnson (2003). Although relations between the Chumash and Salinans are described as hostile (Hester 1978:500), some trade occurred between the groups because the Chumash supplied shell ornaments and other wood and steatite materials to the Salinans (Greenwood 1978:523).

The decimation of Native American populations and subsequent deterioration of cultural practices as a result of missionization is a profound event in the history of the coastal and inland valley regions (Greenwood 1978:523). Much information was lost, and the mission records do not provide much insight into the lifeways of the Salinans or other groups of this region prior to contact with Europeans.

2.4 HISTORY

At the most general level, study area history can be divided into three eras reflecting Spanish, Mexican, and United States governance. Between 1769 and 1823, the Spanish established 21 missions along the California coast between San Diego and Sonoma. The current project area lies between two of these missions: San Miguel Archangel (founded 1797) to the south and San Antonio (founded 1771) to the west.

Mission San Antonio, the closest mission to the project area, was the third mission founded by Junipero Serra and would have had the greatest impact on Native Americans that lived in the area. The eventual complete disruption of the aboriginal lifeway was due to factors such as the introduction of Euro-American diseases and a declining birth rate brought on by the impact of the mission system. The Native Americans were transformed from mobile foraging hunter-gathers into sedentary agriculturalist or in some cases craft artisans, such as weavers (Hester 1978:503). For a discussion of Euro-American and Native American relations in California see Heizer (1978) and Stewart (1978).

California became a Mexican territory in 1822 after Mexico won its independence from Spain. The Secularization Act of 1833 ended the church's monopoly of prime California lands, and mission estates were redistributed to private individuals in the form of land grants. During the early and mid 1840s, the former mission lands of the county were carved up into large ranchos, each totaling several thousand acres (Hoover et al. 1990). The western end of the project area extends into lands once occupied by Rancho San Bernardo, or San Bernardino (Hoover et al. 1990:224), the southernmost rancho in the Salinas River region. These 13,346 acres of rich bottomland were granted in 1841 by Governor Alvarado to Mariano and Juan Sobranes and mostly used for cattle grazing. At the end of 1846 and early in 1847, during the latter part of the Hispanic era, John C. Fremont led the California Battalion southward from Monterey and along the Salinas River Valley during the last phase of the American takeover of California.

In the mid nineteenth century, most of the rancho and pueblo lands and some of the ungranted land in California were subdivided as the result of population growth, the American takeover, and the confirmation of property titles. Monterey County is one of the original 27 counties created and described by an act of the California State Legislature and approved by Governor Peter H. Burnett, February 18, 1850 (Hoover et al. 1990). The City of Monterey is important for its early Hispanic Period occupation and as the first state capitol during the American Period. Monterey was also the county seat until it was superseded by Salinas in 1873 (Hoover et al. 1990:213).

As the Southern Pacific Railroad pushed southward in 1886, the towns of San Ardo and Bradley were established along the line at the southern end of Monterey County. The current project area includes the railroad at a point between these two settlements. San Ardo was located on Rancho San Bernardo, within lands acquired by Brandenstein and Godchaux, a San Francisco wholesale

butchering firm (Gudde 1998:330) that granted a right-of-way to Southern Pacific through its cattle ranch. San Ardo's name was shortened from San Bernardo to avoid confusion with the San Bernardino community in Southern California. Bradley was named for Bradley Sargent and was situated within his 12,000-acre La Pestilencia Ranch. Sargent, a state senator from 1887 to 1889 (Gudde 1998:45), was one of the largest landowners in central California (Fink 1982:156) and also gave his name to Sargent Canyon and Sargent Creek in the project area. In comparison to the north coastal part of the county, the general area has remained rural in character. Major construction and development in the San Ardo Oil Field did not begin until after 1949 (Environmental Data Resources, Inc. 2008).

3
RESEARCH AND FIELD METHODS

3.1 RECORDS SEARCH

Prior to the field survey, Æ obtained a records search from the Northwest Information Center of the California Historical Resources Information System on December 2, 2010 (see Appendix B). The Northwest Information Center, an affiliate of the State of California Office of Historic Preservation, is the official state repository for archaeological and historic records and reports for an area that includes Monterey County, and is housed at Sonoma State University, Rohnert Park. Additional research was conducted using the files and literature maintained at Æ's office in San Luis Obispo.

The records search and literature review were done to: (1) determine whether any cultural resources had been recorded previously within or adjacent to the project area and to determine if the parcel was subject to surveys in the past; (2) assess the likelihood of unrecorded cultural resources based on archaeological, ethnographic, and historical documents and literature; and (3) review the distribution of nearby archaeological sites in relation to their environmental setting.

Included in the review were:

- *Historic Spots in California* (Hoover et al. 1990),
- *California Place Names* (Gudde 1998),
- *California Inventory of Historical Resources* (Office of Historic Preservation 1976),
- *California Office of Historic Preservation's Five Views: An Ethnic Historic Site Survey for California* (Office of Historic Preservation 1988),
- *California Historical Landmarks* (Office of Historic Preservation 1996)
- *California Points of Historical Interest* (Office of Historic Preservation 1992), and
- Historic Properties Directory Listing for Monterey County (2010), which includes the National Register of Historic Places, the California Register of Historical Resources, and the most recent listings (through February 2010) of the California Historical Landmarks and California Points of Historical Interest.

3.2 NATIVE AMERICAN PARTICIPATION

On November 10, 2010, Æ contacted the California Native American Heritage Commission (NAHC) and requested a search of their sacred lands inventory file to identify any known places within or adjacent to the project area of importance to Native Americans. On November 23, 2010 the NAHC responded, indicating that there is no record of Native American resources within the

project area. However, they did provide a list of individuals and groups to contact for further consultation. Consultation letters to these groups and individuals were sent on December 22, 2010 (see Appendix C).

3.3 FIELD SURVEY

Between December 6 and 17, 2010, Æ archaeologists Damon Haydu, Marc Linder, David Price, Dan Knecht, Kathleen Jernigan, and Andrew Monastero conducted a pedestrian field survey of the 2,200-acre project area (Figure 3-1). The entire area was surveyed on foot in transects spaced 10–15 meters apart on ridgetops, midslope terraces, and drainages. Transects along steeper slopes were spaced approximately 20–30 meters apart. Survey transects were oriented in a north-south or east-west direction to allow maximum coverage of the ground surface. Special attention was paid to disturbed soil around rodent holes, cleared areas where the soil surface was exposed, or cutbanks and stream channels where soil profiles could be examined.

The cultural resources survey area consisted principally of the oil fields. The natural geography and topography of the area has been altered in the past 50 years due to the leveling and grading of well sites. Access roads, fencing, and gates have been constructed within the project area and modern debris is associated with well sites and pipeline alignments. At the time of the survey, open ridgetops and drainages offered the best ground visibility (50–95 percent), while nonnative grasses, bindweed, Jimsonweed, and other vegetation covered slopes (ground visibility 5–50 percent). Given the environmental setting and the moderate sensitivity of the general area, it was anticipated that prehistoric sites, ranging from isolates to lithic debris scatters and midden deposits, might be encountered, particularly on alluvial flats next to drainages. It was also considered possible that outlying historic-period deposits related to agricultural activities, homesteads, and early ranching might be present.

Indicators of prehistoric sites in this area may include, but are not limited to, fragmented shell; ground depressions; darkened soil areas indicative of middens; fire scorched and/or cracked rock; modified obsidian, quartzite, or other vitreous minerals; and grinding stones, including manos and metates. Historic era artifacts may include, but are not limited to, metal objects including nails; containers or miscellaneous hardware; glass fragments; ceramic or stoneware objects or fragments; milled or split lumber; trenches; feature or structure remains such as buildings or building foundations, canals, and ditches; and trash dumps.

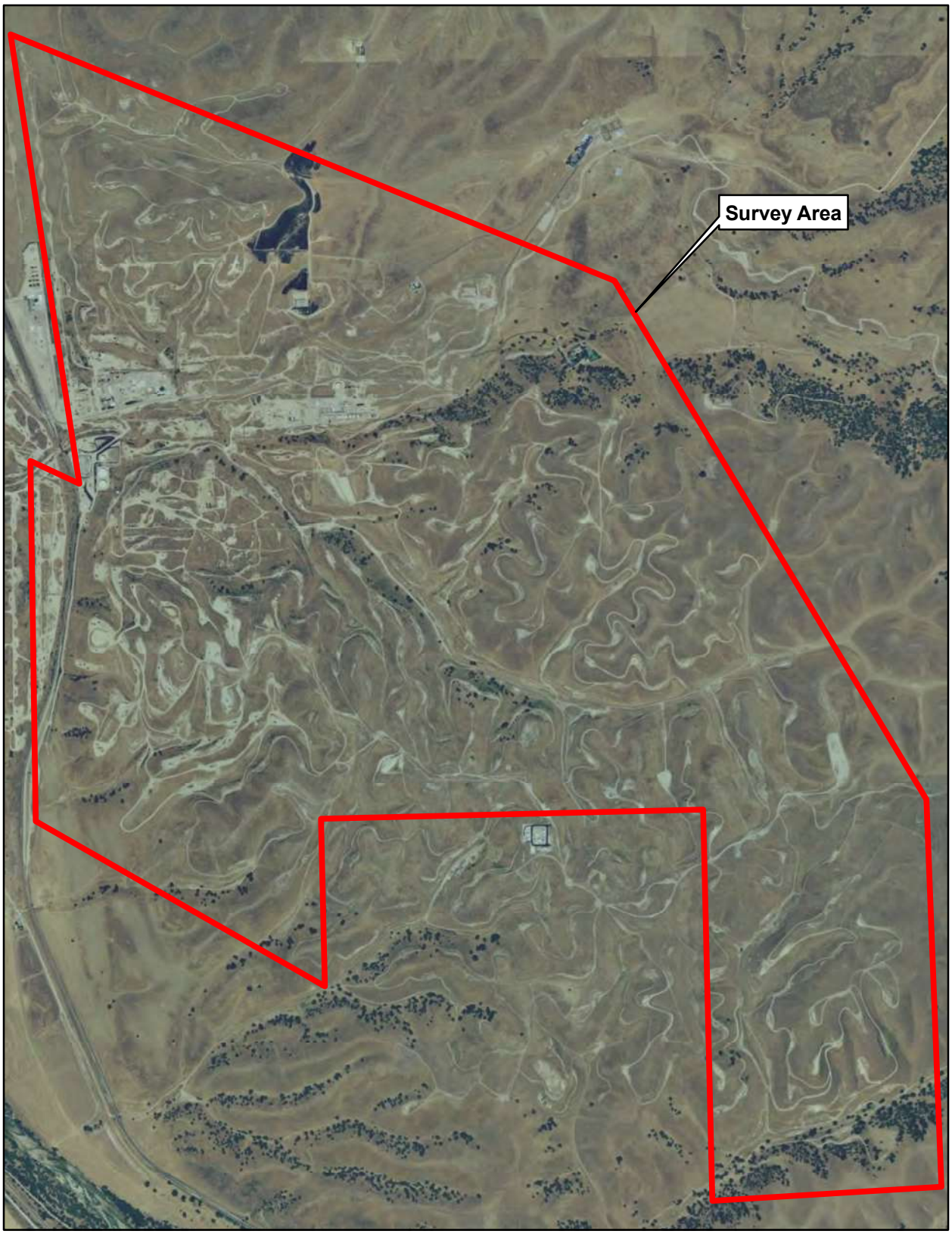


Figure 3-1 Aerial view of the survey area.

4
FINDINGS

4.1 RECORDS SEARCH

The records search revealed that portions of the project area have been the subject of 14 previous cultural resources studies (Table 4-1).

Table 4-1
Previous Cultural Resources Studies Within or Adjacent to the Project Area

Report No.	Date	Author (s)	Title	Results within Project Area
S-3549	1980	Hampson and Breschini	Preliminary Archaeological Reconnaissance of Five Mobile Oil Well Sites, Sargent Canyon, Southern Monterey County, California	Negative
S-3622	1980	Breschini and Haversat	Preliminary Archaeological Reconnaissance of Major Portions of Sections 2 & 11, Sargent Canyon, Southern Monterey County, California	Negative
S-3726	1981	Breschini and Haversat	Preliminary Archaeological Reconnaissance of Five Well Sites near Powell & Sargent Canyons, Southern Monterey County, California	Negative
S-5962	1981	Breschini et al.	Preliminary Archaeological Reconnaissance of Nearly 5,000 Acres in the San Ardo Oil Fields, Sargent Canyon, California	Negative
S-5970	1982	Breschini et al.	Preliminary Cultural Resources Reconnaissance of a Proposed Natural Gas Pipeline and Electric Transmission Lines, Monterey, San Luis Obispo, and King Counties, California	Negative
S-7750	1985	Fredrickson and Gerike	West Coast Cogeneration Project, San Ardo	Negative
S-8284	1980	Breschini and Haversat	Preliminary Archaeological Reconnaissance at the Mouth of Sargeant Canyon, Southern Monterey County, California	Negative
S-12532	1991	Harmon et al.	Cultural Resources Assessment, Texaco Salinas River and Sargeant Canyon Cogeneration Project, Monterey County, California	Negative
S-22819	2000	Nelson et al.	Cultural Resources Survey for the Level (3) Communications Long Haul Project, Segment WS05: San Jose to San Luis Obispo	Negative
S-28229	2003	Holson	Archaeological Records Search Results for the MCI WorldCom Line Replacement, King City to San Miguel Segment	Negative
None	2008	Conway	An Archaeological Surface Survey for a Proposed Water Reclamation Plant, Pipeline, and Water Disposal Area at the Aera Energy, LLC, Oil Production Facility, San Ardo, Monterey County, California	CA-MNT-2259
None	2009	Conway	An Archaeological Surface Survey for Proposed Water Filtration Basins at the Aera Energy, LLC, Oil Production Facility, San Ardo, Monterey County, California	Negative
None	2010	Conway	An Archaeological Surface Survey for a Proposed Transmission Line Corridor at the Aera Energy, LLC, Oil Production Facility, San Ardo, Monterey County, California	Negative
None	2010	Conway	Archaeological Subsurface Testing Assessment at the Aera Energy Oil Production Facility, San Ardo, Monterey County, California	Negative

One of these studies (Conway 2008) resulted in the recording of prehistoric archaeological resource CA-MNT-2259. As part of a cultural resources study of a proposed water reclamation plant, pipeline, and water disposal area within the San Ardo Oil Fields, Conway identified prehistoric lithic debris at the edge of a road leading into Sargent Canyon. Constituents of CA-MNT-2259 included a utilized Franciscan chert flake tool and several chert flakes. Two subsequent attempts to relocate the site (Conway 2010a, 2010b) were unsuccessful.

The records search also revealed that one prehistoric cultural resource has been recorded within 0.25 mile of the project area. CA-MNT-1172 was recorded by Archaeological Consulting, Inc. (Hampson et al. 1981) northeast of the current project area on a shallow toe on the south side of Sargent Creek just to the west of the confluence of Sargent Canyon and Powell Canyon. The site is described as a widely scattered lithic scatter of locally occurring chert.

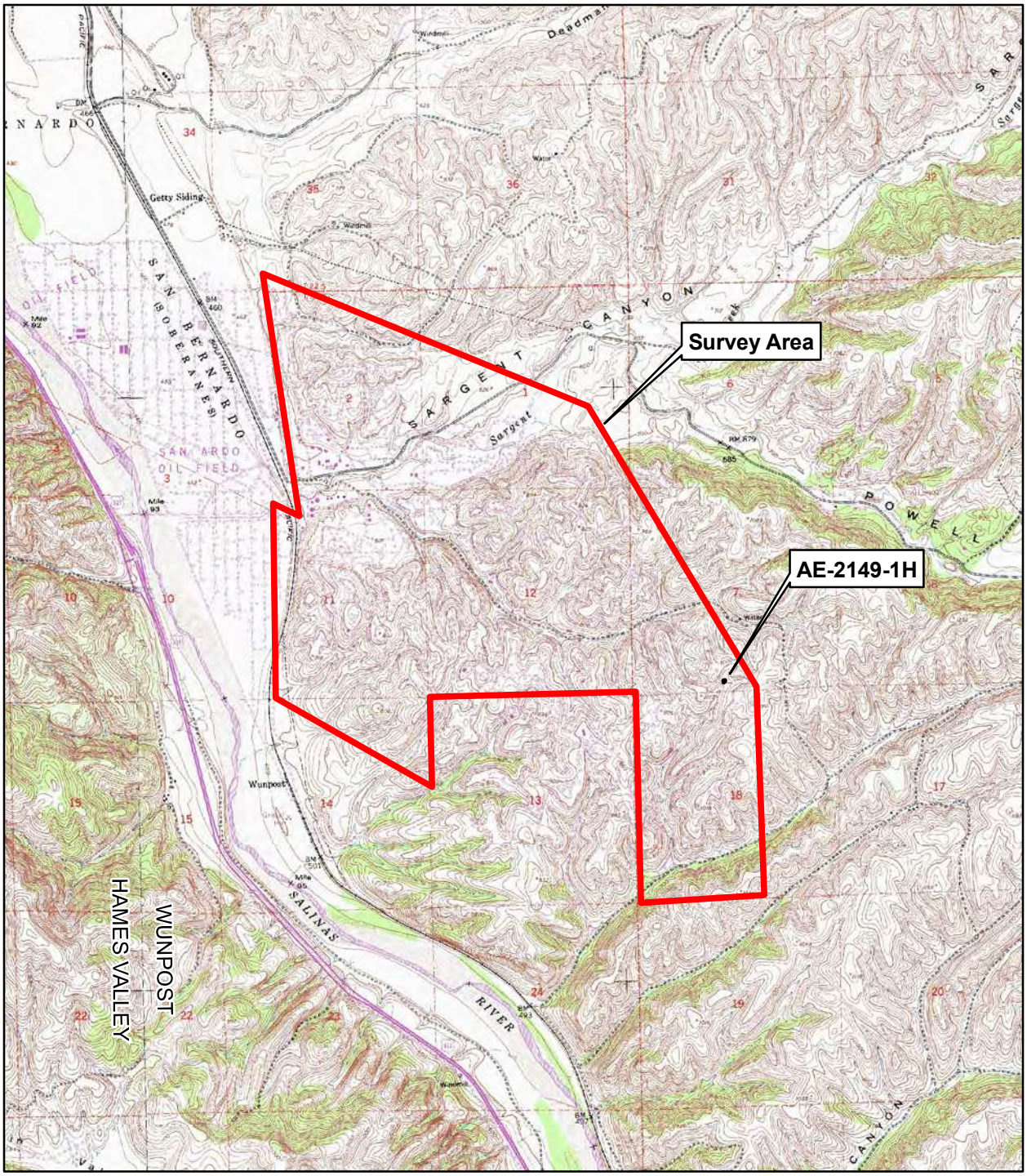
4.2 NATIVE AMERICAN PARTICIPATION

On December 22, 2010, Æ sent consultation letters to the individuals and groups identified by the NAHC to ask for information and provide the opportunity for consultants to express concerns about the effects of the project on resources within the project area (see Appendix C). No response has been received to date.

4.3 FIELD SURVEY

The field survey resulted in the identification of one historic-period ranching feature documented as AE-2149-1H. The resource consists of a relatively small historic wooden corral and two adjoining enclosures with barbed wire fences situated within a natural basin at the head of a drainage. The roughly L-shaped corral, measuring 43 feet long (north–south) by 40 feet wide (east-west) by a maximum 5 feet high, is separated by gates into two compartments. It is constructed of upright 6 by 8 inch wood posts, horizontal boards of varying dimensions (1 1/2 by 5 inch, 1/2 by 5 3/4 inch, and 1 1/2 by 11 inch), and connecting hardware (wire nails of various sizes, 1/4-inch bolts and hex nuts, and other fasteners). Two large wooden gates have pairs of large steel hinges attached with 1/2-inch and 3/4-inch bolts with square nuts. The corral has been repaired over time, and modern elements such as pressure-treated 6 3/4 by 8 inch uprights, plywood sections, and newer hardware have replaced older historic wood. The adjoining four- and five-sided enclosures are comprised of wooden uprights of various dimensions, steel T-posts, and barbed wire; together they measure 173 feet (north-south) by 106 feet (east-west). The resource probably dates to the mid twentieth century. The California Department of Parks and Recreation Primary Record and Location Map for this resource are provided in Appendix D.

The field crew of six carried out an intensive (1-meter transect) survey of the recorded location of CA-MNT-2259 on December 16, 2010. No cultural material was identified. Naturally occurring chert cobbles exist throughout the project site. Scarred chert cobbles were noted within and adjacent to Sargent Canyon Road; these are the product of naturally occurring flaking and construction equipment battering, but in some cases might be mistaken for Native American artifacts. These conclusions support the negative findings of Conway's (2010b) Phase II subsurface testing of the site in November 2010.



U.S.G.S. 7.5 Minute
Topographic Quadrangle
Wunpost, CA 1949 (Photorevised 1979)
Hames Valley, CA 1949 (Photorevised 1978)

0 0.5 1 Miles

Scale 1:48,000

Figure 4-1 Location of the historic-period corral (AE-2149-1H) within the project area.

5
SUMMARY AND RECOMMENDATIONS

A full accounting of known cultural resources within the project area was achieved by consulting pertinent anthropological literature, historic documents and maps, and information on file at the Northwest Information Center in conjunction with an intensive pedestrian survey in December 2010. During the survey, Æ archaeologists identified one historic-period wooden corral, AE-2149-1H, within the project area.

The historic-period corral will be avoided by any ground disturbance associated with the San Ardo Oil Field improvements. In the event that AE-2149-1H cannot be avoided by impacts related to future oil field improvements, the corral should be formally evaluated using the criteria of the California Register of Historical Resources, including research to establish historical associations, if any.

5.1 POTENTIAL FOR SUBSURFACE DEPOSITS

There is the possibility that subsurface archaeological deposits may exist in the project area, as archaeological sites may be buried with no surface manifestation. If concentrations of prehistoric or historic-period materials are encountered during ground-disturbing work, all work in the immediate vicinity should halt until a qualified archaeologist can evaluate the finds and make recommendations. Prehistoric materials might include obsidian and chert flaked stone tools (e.g., projectile points, knives, scrapers) or tool-making debris; culturally darkened soil ("midden") containing heat-altered rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones). Historical materials might include stone, concrete, wood or adobe building foundations, corrals, and walls; filled wells or privies; agriculture features; and deposits of metal, glass, and/or ceramic refuse.

5.2 POTENTIAL FOR ENCOUNTERING HUMAN REMAINS

No intact human remains have been identified in the project area, although some anthropic deposits have been reported in archaeological deposits within the general vicinity. Therefore, the possibility of encountering human remains cannot be entirely discounted. Section 7050.5 of the California Health and Safety Code states that it is a misdemeanor to knowingly disturb a human grave. If human graves are encountered, work should halt in the vicinity and the Monterey County Coroner should be notified immediately. At the same time, an archaeologist should be contacted to evaluate the situation. If human remains are of Native American origin, the coroner must notify the Native American Heritage Commission within 24 hours of this identification.

6
REFERENCES CITED

Arnold, Jeanne E.
1992 Complex Hunter-Gatherer-Fishers of Prehistoric California: Chiefs, Specialists, and Maritime Adaptations of the Channel Islands. *American Antiquity* 57:60–84.

Bouey, Paul D., and Mark E. Basgall
1991 *Archaeological Patterns along the South Central Coast, Point Piedras Blancas, San Luis Obispo County, California: Archaeological Test Evaluations of Sites CA-SLO-264, SLO-266, SLO-267, SLO-268, SLO-1226, and SLO-1227.* Far Western Anthropological Research Group, Inc., Davis, California. Submitted to California Department of Transportation, Environmental Division, Sacramento, Contract No. SAO5b86100.

Breschini, Gary S., and Trudy Haversat
1982 *California Radiocarbon Dates*. 1st ed. Coyote Press, Salinas, California.

Breschini, Gary S., Trudy Haversat, and R. Paul Hampson
1983 *A Cultural Resources Overview of the Coast and Coast-Valley Study Areas*. Coyote Press, Salinas, California.

Colten, Roger H.
1997 Site Location and Setting. In *Hunter-Gatherer Land Use in the San Antonio Creek Drainage: Archaeological Investigations at CA-SBA-2696*, Barry A. Price, general editor, pp. 2.1–2.15. Applied EarthWorks, Inc., Fresno, California. Submitted to the Central Coast Water Authority, Buellton, California.

Conway, Thor
2008 *An Archaeological Surface Survey for a Proposed Water Reclamation Plant, Pipeline, and Water Disposal Area at the Aera Energy, LLC, Oil Production Facility, San Ardo, Monterey County, California.* Submitted to Padre Associates, Inc., San Luis Obispo, California.

2010a *An Archaeological Surface Survey for a Proposed Transmission Line Corridor at the Aera Energy, LLC, Oil Production Facility, San Ardo, Monterey County, California.* Submitted to Padre Associates, Inc., San Luis Obispo, California.

2010b *An Archaeological Subsurface Testing Assessment at the Aera Energy Oil Production Facility, San Ardo, Monterey County, California.* Submitted to Padre Associates, Inc., San Luis Obispo, California.

Environmental Data Resources, Inc.
2008 Aera–San Ardo Water Plant, Sargents Road, San Ardo, CA. Inquiry Number 2272073.1 EDR Aerial Photo Decade Package.

Erlandson, Jon M.
1988 *Of Millingstones and Molluscs: The Cultural Ecology of Early Holocene Hunter-Gatherers on the California Coast.* Ph.D. dissertation, University of California, Santa Barbara.

1991 Shellfish and Seeds as Optimal Resources: Early Holocene Subsistence on the Santa Barbara Coast. In *Hunter-Gatherers of Early Holocene Coastal California*, edited by Jon M. Erlandson and Roger H. Colten, pp. 89–100. Perspectives in California Archaeology, vol. 1. Institute of Archaeology, University of California, Los Angeles.

1994 *Early Hunter-Gatherers of the California Coast.* Plenum, New York.

Fink, Agusta
1982 *Monterey County: The Dramatic Story of Its Past (Monterey Bay, Big Sur, Carmel, Salinas Valley).* Western Tanager Press, Santa Cruz.

Gibson, Robert O.
1995 *Results of Archaeological Monitoring for the Renewal of Two 8-inch Main Pipelines near Santa Margarita, San Luis Obispo County, California.* Submitted to Unocal, San Luis Obispo, California.

Glassow, Michael A.
1990 *Archaeological Investigations on Vandenberg Air Force Base in Connection with the Development of Space Transportation System Facilities,* with contributions by Jeanne E. Arnold, G. A. Batchelder, Richard T. Fitzgerald, Brian K. Glenn, D. A. Guthrie, Donald L. Johnson, and Phillip L. Walker. Department of Anthropology, University of California, Santa Barbara. Submitted to U.S. Department of the Interior, National Park Service, Western Region Interagency Archeological Services Branch, San Francisco, Contract No. CX-8099-2-0004.

1992 The Relative Dietary Importance of Marine Foods through Time in Western Santa Barbara County. In *Essays on the Prehistory of Maritime California*, edited by Terry L. Jones, pp. 115–128. Center for Archaeological Research Publication No. 10. Department of Anthropology, University of California, Davis.

Glassow, Michael A., and Larry R. Wilcoxon
1988 Coastal Adaptations near Point Conception, California, with Particular Regard to Shellfish Exploitation. *American Antiquity* 53:36–51.

Grant, Campbell
1978 Interior Chumash. In *California*, edited by Robert F. Heizer, pp. 530–534. Handbook of North American Indians, vol. 8, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Greenwood, Roberta S.
1972 *9000 Years of Prehistory at Diablo Canyon, San Luis Obispo County, California.* San Luis Obispo County Archaeological Society Occasional Paper No. 7.

1978 Obispeño and Purisimeño Chumash. In *California*, edited by Robert F. Heizer, pp. 520–523. Handbook of North American Indians, vol. 8, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Gudde, Erwin G.
1998 *California Place Names: The Origin and Etymology of Current Geographical Names.* 4th ed., revised and enlarged by William Bright. University of California Press, Berkeley.

Hampson, Wilfong, and Loeffler
1981 Site Record Form for CA-MNT-1172. On file, Northwest Information Center, Rohnert Park, California.

Hester, Thomas R.
1978 Salinan. In *California*, edited by Robert F. Heizer, pp. 500–504. Handbook of North American Indians, vol. 8, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Hoover, Mildred Brooks, Hero Eugene Rensch, Ethel Grace Rensch, and William N. Abeloe
1990 *Historic Spots in California,* 5th ed., revised by Douglas E. Kyle. Stanford University Press, Stanford, California.

Jones, Terry L., S. Anderson, Gary M. Brown, A. Garsia, K. Hildebrand, and Andrew York
1989 *Surface Archaeology at Landels-Hill Big Creek Reserve and the Gamboa Point Properties.* Environmental Field Program 18. University of California, Santa Cruz.

Jones, Terry L., Kathleen Davis, Glenn Farris, Steven D. Grantham, Teresa W. Fung, and Betty Rivers
1994 *Toward a Prehistory of Morro Bay: Phase II Archaeological Investigations for the Highway 41 Widening Project, San Luis Obispo County, California.* Submitted to California Department of Transportation, Environmental Branch, San Luis Obispo.

Jones, Terry L., Nathan E. Stevens, Deborah A. Jones, Richard T. Fitzgerald, and Mark G. Hylkema
2007 The Central Coast: A Midlatitude Milieu. In *California Prehistory: Colonization, Culture, and Complexity,* edited by Terry L. Jones and Kathryn A. Klar, pp. 125–146. AltaMira Press, Lanham, Maryland.

Jones, Terry L., and Georgie Waugh
1995 *Central California Coastal Prehistory: A View from Little Pico Creek.* Perspectives in California Archaeology, vol. 3, Jeanne M. Arnold, senior series editor. Institute of Archaeology, University of California, Los Angeles.

King, Chester D.
1990 *Evolution of Chumash Society: A Comparative Study of Artifacts Used for Social System Maintenance in the Santa Barbara Channel Region before A.D. 1804.* The Evolution of North American Indians, edited by David Hurst Thomas. Garland, New York.

Kroeber, Alfred L.
1976 *Handbook of the Indians of California.* Reprinted. Dover Publications, New York. Originally published 1925, Bureau of American Ethnology Bulletin No. 78, Smithsonian Institution, Washington, D.C.

Küchler, A. W.
1977 T*he Map of the Vegetation of California.* University of Kansas, Lawrence.

Milliken, Randall, and John Johnson
2003 *Salinan and Northern Chumash Communities of the Early Mission Period.* Far Western Anthropological Research Group, Inc, Davis, California.

Moratto, Michael J.
1984 *California Archaeology.* Academic Press, Orlando, Florida.

Office of Historic Preservation (OHP)
1976 *California Inventory of Historic Resources*. State of California, Resources Agency, Department of Parks and Recreation, Sacramento.

1988 *Five Views: An Ethnic Historic Site Survey for California,* California Department of Parks and Recreation, Office of Historic Preservation, Sacramento.

1992 *California Points of Historical Interest*. State of California, Department of Parks and Recreation, Sacramento.

1996 *California Historical Landmarks,* http://www.ohp.parks.ca.gov/default.asp?page_id=21526, accessed 2 August 2004. California Department of Parks and Recreation, Office of Historic Preservation, Sacramento.

Stewart, Omer C.
1978 Litigation and Its Effects. In *California,* edited by Robert F. Heizer, pp. 705–712. Handbook of North American Indians, vol. 8, William C. Sturtevant, general editor. Smithsonian Institution, Washington D.C.

Wallace, William J.
1978 Post-Pleistocene Archeology, 9000 to 2000 B.C. In *California*, edited by Robert F. Heizer, pp. 25–36. Handbook of North American Indians, vol. 8, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

APPENDIX A

Personnel Qualifications

DAMON M. HAYDU, RPA

Expertise

Cultural resource management, environmental impact analysis, and tribal consultation. Working knowledge of California prehistoric and historic archaeology; project budgeting and management; and health and safety issues. Experience in cultural resource sections for a variety of environmental documents including initial studies (IS), environmental assessments (EA), environmental impact reports (EIR), and environmental impact statements (EIS).

Education

M.A. Cultural Resource Management, Sonoma State University, 2005.
B.A. Department of Anthropology, University of California at Santa Cruz, 1976 (with honors).

Professional Experience

2009–	Staff Archaeologist, Applied EarthWorks, Inc., San Luis Obispo, California.
2005-2009	Staff Archaeologist, Analytical Environmental Services, Sacramento, California.
1999–2005	Archaeological Specialist/Technician, Anthropological Studies Center, Sonoma State University, Rohnert Park, California.
1999–2005	THP Coordinator/Researcher II, Northwest Information Center of the California Historical Information System, Rohnert Park, California
2004–2005	Archaeological Technician, Tom Origer & Associates, Santa Rosa, California.
1994–1995	Archaeological Technician, David Chavez & Associates, San Rafael, California.

Technical Qualifications

Mr. Haydu has more than 11 years experience as a cultural resource specialist throughout California. His experience encompasses all phases of cultural resource management including field survey and site documentation, significance evaluation and mitigative data recovery excavation, laboratory processing and analysis, project management and client consultation, and report preparation. Areas of expertise include state and federal regulatory compliance, land use planning, and impact analysis under the California Environmental Quality Act (CEQA) National Environmental Policy Act (NEPA), and Section 106 and 110 of the National Historic Preservation Act (NHPA). Other specialties include Native American consultation and coordination with federal and state agencies. Mr. Haydu has managed more than 30 State Water Board applications, Tribal Fee-to-Trust actions, and National Register evaluations of both prehistoric and historic-period resources. He has developed close working relationships with several state and federal agencies including the California Department of Fish and Game (CDFG), Caltrans, California State Water Board, Bureau of Indian Affairs (BIA), Bureau of Land Management (BLM), National Park Service (NPS), and several Native American nations including the Rumsey Band of Wintun Indians, Auburn Rancheria, and the Quechan Nation.

BARRY A. PRICE, RPA

Expertise

Cultural resource management, land use planning, facility siting, and environmental impact analysis. Extensive knowledge of California and Great Basin prehistory; archaeological method and theory; project budgeting, management, and administration; proposal preparation and contract coordination. Specialized training in NHPA, NEPA, and CEQA compliance, mitigation monitoring, and preparing agreement documents under state and federal historic preservation law.

Education

M.A. Cultural Resource Management, Sonoma State University, 1994.
B.A. Department of Anthropology, Sonoma State University, 1976 (with honors).

Professional Experience

1995–	Vice President, Principal Archaeologist, and Western Division Manager, Applied EarthWorks, Inc., Fresno and San Luis Obispo, California.
1989–1995	Vice President (1992–1995), Assistant Vice President (1991–1992), Senior Archaeologist/ Program Manager (1989–1991), INFOTEC Research, Inc., Fresno, California.
1984–1989	Principal Investigator and Project Director, Retrospect Research Associates, Ely, Nevada.
1983–1984	Archaeologist, Bureau of Land Management, Ely District.
1982–1983	Archaeological Specialist/Historian, California Department of Parks and Recreation, Sacramento.
1979–1982	Staff Archaeologist (1979–1982), Archaeological Resource Service, Novato, California; Field Technician and Laboratory Analyst (1981–1982), INFOTEC Development, Inc.
1975–1979	Staff Archaeologist (1977–1979), Curatorial Assistant (1975–1979), Cultural Resources Facility, Sonoma State University Foundation.

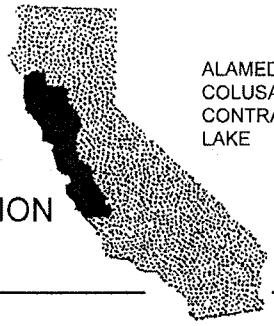
Technical Qualifications

Mr. Price is a Registered Professional Archaeologist (RPA) with more than 30 years of experience in prehistoric and historical archaeology and cultural resources management. As Principal Archaeologist and Western Division Manager for Applied EarthWorks, Mr. Price directs professional staff and subcontractors in the performance of project work. Mr. Price has expertise in many aspects of cultural resources management including project design and administration, data acquisition, laboratory analysis, report preparation, and technical management. His experience includes administering large, multi-year, multi-phased projects as well as smaller surveys and test excavations. He has authored numerous articles and technical reports, and has prepared many planning documents, research designs, management plans, and other CEQA, NEPA, and NHPA compliance documents. He has completed both the introductory and advanced Advisory Council courses in historic preservation law and received advanced training in the cultural resource policies and procedures of the Federal Energy Regulatory Commission, U.S. Army Corps of Engineers, and California Environmental Quality Act.

APPENDIX B

Records Search Results

CALIFORNIA
HISTORICAL
RESOURCES
INFORMATION
SYSTEM



ALAMEDA
COLUSA
CONTRA COSTA
LAKE
MARIN
MENDOCINO
MONTEREY
NAPA
SAN BENITO
SAN FRANCISCO
SAN MATEO
SANTA CLARA
SANTA CRUZ
SOLANO
SONOMA
YOLO

Northwest Information Center
Sonoma State University
150 Professional Center Drive, Suite E
Rohnert Park, California 94928-3609
Tel: 707.588.8455
Email: leigh.jordan@sonoma.edu
http://www.sonoma.edu/nwic

MEMO

Date: December 2, 2010 NWIC File No.: 10-0467

To: Damon Haydu

From: Bryan Much

Re: Records Search Summary Letter for the San Ardo Oil Field Project

Wunpost 7.5' QUAD

Resources within project area: There is one resource located within your project area: P-27-002907 (CA-MNT-2259). The location of this resource has been plotted on the map and a copy of the record and database information has been included for your reference.

Resources within ¼ mile radius: There is one resource located within the ¼ mile radius of your project area: P-27-001224 (CA-MNT-1172). The location of this resource has been plotted on the map and a copy of the record and database information has been included for your reference.

Studies within project area: There are ten studies located within your project area: S-3549, S-3622, S-3726, S-5962, S-5970, S-7750, S-8284, S-12532, S-22819, and S-28229. The locations of these studies have been plotted on the map and the full bibliographic information has been included for your reference. Full copies for all reports except S-22819 are also included for your reference.

Studies within ¼ mile radius: There are four studies located within the ¼ mile radius of your project area: S-3636, S-9294, S-11702, and S-11703. The locations of these studies have been plotted on the map and the full bibliographic information has been included for your reference.

OHP HPD: No listings were found within your records search area.

ADOE: No listings were found within your records search area.

California Inventory: No listings were found within your records search area.

Caltrans Bridge Survey: No listings were found within your records search area.

Historic Maps:	A copy of the 1919 Bradley 15-minute quadrangle depicting your project area has been included for your reference.
Local inventories:	No local inventories cover your project area.
GLO Plat Map:	No cultural features were noted on the 1856 and 1880 T23S/R10E plat maps or the 1856 T23E/R11E plat maps. Given the lack of cultural features, no copies were made.
Soil Survey:	A map depicting USDA soil information for your project area has been provided for your reference.

Northwest Information Center Resource Detail Record: P-27-001224

Identifying Information

Primary No.: P-27-001224
HRI No.:
Trinomial: CA-MNT-1172
Name: AC-232-1
Other IDs:

Attributes

Resource Type: ☐ Building ☐ Structure ☐ Object ☑ Site ☐ District ☐ Element of District ☐ Other
Age: ☑ Prehistoric ☐ Protohistoric ☐ Historic ☐ Unknown
Information Base: ☑ Surface survey ☐ Surface collection ☐ Testing ☐ Excavation ☐ Analysis ☐ Other ☐ Unknown
Collections:
Disclosure: Not for publication
Attribute Codes: AP02 Lithic scatter
Cross-refs:

Recording Events

Date	*Recorder(s)*	*Affiliation*	*Notes*
11/1/1981	SMITH		

Associated Documents

S-number	*Year*	*Title*
S-005962	1981	Preliminary Archaeological Reconnaissance of Nearly 5,000 Acres in the San Ardo Oil Fields, Sargent Canyon, Southern Monterey County, California

Notes

Location Info

County: Monterey
USGS 7.5' Quads: Wunpost
PLSS:
Address:

UTMs:	*Datum*	*Zone*	*Easting*	*Northing*	*At point*
	NAD27	10	695100	3981300	

Management status

Database Record Metadata

	Date	*User*	
Entered:	4/1/2005	icrds	
Last Modified:	12/1/2010	muchb	
IC Actions:	*Date*	*User*	*Action taken*
	4/1/2005	jay	Appended records from discontinued ICRDS.
	12/1/2010	muchb	fixed databse attribute errors

Date Mapped:

Northwest Information Center Resource Detail Record: P-27-002907

Identifying Information

Primary No.: P-27-002907
HRI No.:
Trinomial: CA-MNT-2259
Name: Sargent Canyon Site
Other IDs: Prehistoric Site

Attributes

Resource Type: ☐ Building ☐ Structure ☐ Object ☑ Site ☐ District ☐ Element of District ☐ Other
Age: ☑ Prehistoric ☐ Protohistoric ☐ Historic ☐ Unknown
Information Base: ☑ Surface survey ☐ Surface collection ☐ Testing ☐ Excavation ☐ Analysis ☐ Other ☐ Unknown
Collections:
Disclosure: Not for publication
Attribute Codes: AP02 Lithic scatter
Cross-refs:

Recording Events

Date	*Recorder(s)*	*Affiliation*	*Notes*
7/24/2008	Thor Conway	Heritage Discoveries, Inc.	

Associated Documents

Notes

Location Info

County: Monterey
USGS 7.5' Quads: Wunpost
PLSS:
Address:

UTMs:	*Datum*	*Zone*	*Easting*	*Northing*	*At point*
	NAD27	10	693500	3980340	

Management status

Database Record Metadata

	Date	*User*
Entered:	9/12/2008	jordanl
Last Modified:	9/12/2008	jordanl
IC Actions:		
Date Mapped:		

Northwest Information Center Report Listing

S-number	Year	Author(s)	Title	Affiliation
S-003549	1980	Paul Hampson and Gary S. Breschini	Preliminary Archaeological Reconnaissance of Five Mobile Oil Well Sites, Sargent Canyon, Southern Monterey County, California	Archaeological Consulting
S-003622	1980	Gary S. Breschini and Trudy Haversat	Preliminary Archaeolgical Reconnaissance of Major Portions of Sections 2 & 11, Sargent Canyon, Southern Monterey County, California	Archaeological Consulting
S-003636	1981	Trudy Haversat and Gary S. Breschini	Preliminary Archaeological Reconnaissance of Five Proposed Water Well Sites,Sargent Canyon, Southern Monterey County, California Sargent Canyon, Southern Monterey County, California	
S-003726	1981	Gary S. Breschini and Trudy Haversat	Preliminary Archaeological Reconnaissance of Five Well Sites near Powell & Sargent Canyons, Southern Monterey County, California	Archaeological Consulting
S-005962	1981	Trudy Haversat, Paul Hampson, and Gary S. Breschini	Preliminary Archaeological Reconnaissance of Nearly 5,000 Acres in the San Ardo Oil Fields, Sargent Canyon, Southern Monterey County, California	Archaeological Consulting
S-005970	1982	R. Paul Hampson, Trudy Haversat, Gary S. Breschini, Robert O. Gibson, and MaryEllen Ryan	Preliminary Cultural Resources Reconnaissance of a Proposed Natural Gas Pipeline and Electric Transmission Lines, Monterey, San Luis Obispo and King Counties, California	Archaeological Consulting
S-007750	1985	David A. Fredrickson and Christian Gerike	West Coast Cogeneration Project: San Ardo	Cultural Resources Facility, Sonoma State University
S-008284	1980	Trudy Haversat and Gary S. Breschini	Preliminary Archaeological Reconnaissance at the Mouth of Sargent Canyon, Southern Monterey County, California	Archaeological Consulting
S-009294	1987	Gary S. Breschini and Charles R. Smith	Preliminary Cultural Resources Reconnaissance of Texaco's Yoakum Fee Property, San Ardo, Monterey County, California	Archaeological Consulting
S-011702	1990	Thomas L. Jackson	The proposed Salinas River Cogeneration Plant development project (letter report)	Biosystems Analysis, Inc.
S-011703	1990	Thomas L. Jackson	The proposed Sargent Canyon Cogeneration Plant development project (letterreport)	
S-012532	1991	Robert M. Harmon, Donna M. Garaventa, and Sondra A. Jarvis	Cultural Resources Assessment, Texaco Salinas River and Sargent Canyon Cogeneration Project, Monterey County, California	Basin Research Associates, Inc.
S-022819	2000	Wendy J. Nelson, Maureen Carpenter, and Julia G. Costello	Cultural Resources Survey for the Level (3) Communications Long Haul Project, Segment WS05: San Jose to San Luis Obispo	Far Western Anthropological Research Group, Inc.
S-028229	2003	John Holson	Archaeological Records Search Results for the MCI WorldCom Line Replacement, King City to San Miguel Segment (letter report)	Pacific Legacy, Inc.

APPENDIX C

Native American Consultation

STATE OF CALIFORNIA Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
Fax (916) 657-5390
Web Site www.nahc.ca.gov

November 23, 2010

Marc Linder
Applied EarthWorks, Inc.
743 Pacific Street, Suite A
San Luis Obispo, CA 93401

Sent by Fax: 805-594-1577
Number of Pages: 2

Re: Proposed San Ardo Oil field Modernization Project; Monterey County

Dear Mr. Linder:

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe or group. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 653-4040.

Sincerely,

Katy Sanchez
Program Analyst

Native American Contact List
Monterey County
November 22, 2010

Judith Bomar Grindstaff
63161 Argyle Road Salinan
King City , CA 93930
(831) 385-3759-home

Salinan Nation Cultural Preservation Association
Robert Duckworth, Environmental Coordinator
Drawer 2447 Salinan
Greenfield , CA 93927
dirobduck@thegrid.net
831-578-1852

Salinan Tribe of Monterey, San Luis Obispo Counties
John W. Burch, Traditional Chairperson
7070 Morro Rd, #A Salinan
Atascadero , CA 93422
salinantribe@aol.com
805-460-9202
805 235-2730 Cell
805-460-9204

Salinan Nation Cultural Preservation Association
Jose Freeman, President
15200 County Road, 96B Salinan
Woodland , CA 95695
josefree@ccio1.com
(530) 662-5316

Xolon Salinan Tribe
Donna Haro
110 Jefferson Street Salinan
Bay Point , CA 94565

Salinan Nation Cultural Preservation Association
Gregg Castro, Administrator
5225 Roeder Road Salinan
San Jose , CA 95111
glcastro@pacbell.net
(408) 864-4115

Salinan Nation Cultural Preservation Association
Doug Alger, Cultural Resources Coordinator
PO Box 56 Salinan
Lockwood , CA 93932
fabbq2000@earthlink.net
(831) 262-9829 - cell
(831) 385-3450

Salinan-Chumash Nation
Xielolixii
3901 Q Street, Suite 31B Salinan
Bakersfield , CA 93301 Chumash

408-966-8807 - cell

This list is current only as of the date of this document.

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 and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed San Ardo Oil Field Modernization Project; Monterey County.

Applied EarthWorks Inc.

EXAMPLE

743 Pacific Street
Suite A
San Luis Obispo, CA 93401
(805) 594-1590
FAX (805) 594-1577

December 22, 2010

John W. Burch
Salinan Tribe of Monterey, San Luis Obispo Counties
7070 Morro Road, #A
Atascadero, CA 93422

Re: San Ardo Oil Field Upgrade Project, Monterey County

Dear Mr. Burch,

Your name and address were provided to us by the Native American Heritage Commission (NAHC), which lists you as an individual with knowledge of Native American resources in Monterey County.

Applied EarthWorks, Inc. (Æ) is preparing to conduct a Phase 1 archaeological survey for the San Ardo Oil Field Modernization Project in Monterey County, California. As requested by Aera Energy, Æ will conduct an archaeological survey of the 2,200 acre project site to support construction of new facilities, demolition of old facilities, and grading at future oil well and facility locations in the San Ardo Oil Field in southeastern Monterey County. The project area is located on the east side of San Ardo, approximately 27 miles south of King City, as depicted on the attached copy of the Wunpost CA 7.5' Quadrangle Map. The area is in the following township, range, and sections:

Wunpost CA Quadrangle:

Township	**Range**	**Sections**
23S	10E	1, 2, 11, 12, 14
23S	11E	7, 18

If you have information regarding the study area or have interest in the project, please phone me or send a letter to my attention. Your comments will be included in our cultural resources inventory report. You can contact me during normal business hours (805) 594-1590 if you have any questions or need additional information. Thank you.

Sincerely,

Damon Haydu
Applied EarthWorks, Inc.

APPENDIX D

Cultural Resource Record

State of California — The Resources Agency **Primary #**
DEPARTMENT OF PARKS AND RECREATION **HRI #**
PRIMARY RECORD
Trinomial
NRHP Status Code

Other Listings
Review Code Reviewer Date

Page 1 **of** 3 **Resource Name or #:** AE-2149-1H

P1. Other Identifier:

***P2. Location: a. County:** Monterey ☒ **Not for Publication** ☐ **Unrestricted**
b. USGS 7.5′ Quad: Wunpost, CA **Date** 1949; PR 1979 T 23S, R 11E; SE ¼ of SW ¼ of Section 7 Mt. Diablo **B.M.**
c. Address: San Ardo Oil Field, San Ardo, CA
d. UTM: NAD , Zone 10; 696159 **mE /** 3979191 **mN**
e. Other Locational Data: From Aera Energy headquarters at the western end of Sargent Canyon, proceed west along Sargent Canyon Road for 0.1 mile to the road leading south to the Exxon/Mobil property. Turn south and follow this gravel road for 0.1 mile, cross a drainage, and turn southeast into the next prominent drainage south of Sargent Canyon. Follow the road within this canyon southeast and east for approximately 2 miles to a large abandoned oil tank. Turn south just before the tank and follow a windy dirt road up a drainage for 0.5 mile to a ridge top where the road intersects another. From that point, follow the road which curves south then east around the highest point of the ridge (elevation marker 1,017 ft) and descends into the next drainage for 0.3 mile to the resource.

***P3a. Description:** The resource consists of a relatively small historic wooden corral and two adjoining barbed wire fenced enclosures situated within a natural basin at the head of a drainage. (See Continuation Sheet.)

***P3b. Resource Attributes:** AH11 Walls Fences. AH16 Other (Corral)

***P4. Resources Present:** ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other:

***P5a. Photograph or Drawing:**

P5b. Description of Photo: Overview of corral and enclosures facing northwest.

***P6. Date Constructed/Age and Sources:** ☐ Prehistoric ☒ Historic ☐ Both

***P7. Owner and Address:**
Mike and Mary Orradre, leased to:
Aera Energy LLC
10000 Ming Ave.
Bakersfield, CA 93311-1302

***P8. Recorded By:** D. Haydu, M. Linder, A. Monastero, D. Price
Applied EarthWorks, Inc.
743 Pacific Street, Suite A
San Luis Obispo, CA 93401

***P9. Date Recorded:** 12/17/10

***P10. Survey Type:** ☒ Intensive ☐ Reconnaissance ☐ Other
Describe: Intensive pedestrian survey for San Ardo Oil Field Conditional Use Permitting.

***P11. Report Citation:** Haydu, Damon M.
2011 *Cultural Resources Inventory for the San Ardo Oil Field Modernization Project, Monterey County, California.* Applied EarthWorks, Inc., San Luis Obispo, California. Prepared for Padre Associates, San Luis Obispo, California.

***Attachments:**
☐ NONE ☒ Location Map ☐ Site/Sketch Map ☒ Continuation Sheet
☐ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☐ Linear Feature Record
☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record
☐ Photograph Record ☐ Other (list):

***P3a. Description (continued):** The roughly L-shaped corral, measuring 43 feet long(north–south) by 40 feet wide (east-west) by a maximum 5 feet high, is separated by gates into two compartments. It is constructed of upright 6 x 8 inch wood posts, horizontal boards of varying dimensions (1 1/2 x 5 inch, 1/2 x 5 3/4 inch, and 1 1/2 x 11 inch), and connecting hardware (wire nails of various sizes, 1/4 inch bolts and hex nuts, and other fasteners). Two large wooden gates have pairs of large steel hinges attached with 1/2-inch and 3/4-inch bolts with square nuts. The corral has been repaired over time, with modern elements replacing older historic wood; this includes pressure treated 6 3/4 x 8 inch uprights, plywood sections, and newer hardware. The adjoining four and five sided enclosures are comprised of wooden uprights of various dimensions, steel T-posts, and barbed wire; together they measure 173 feet (north-south) by 106 feet (east-west). The resource probably dates to the mid 20th century.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

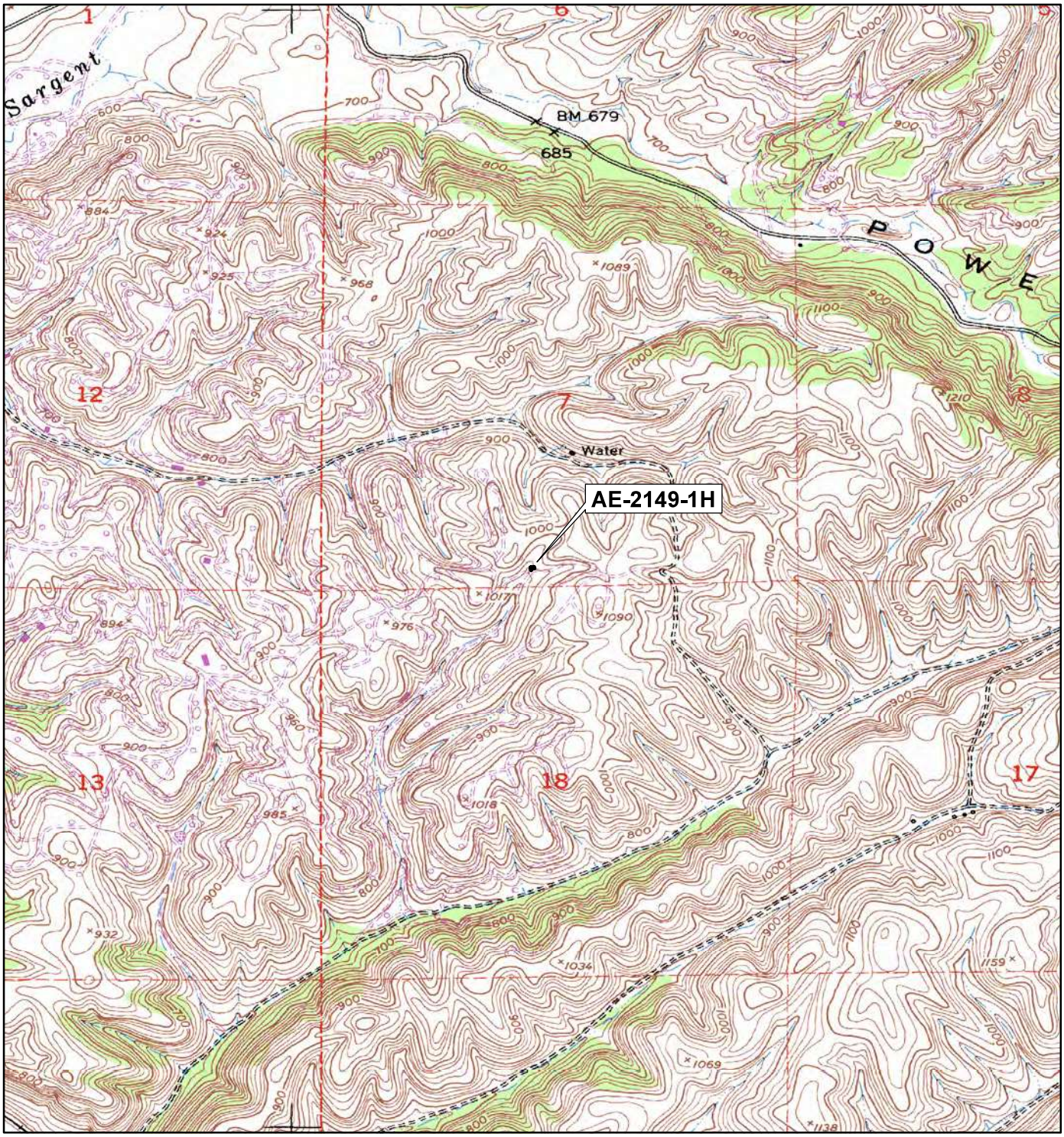
Primary #
HRI#
Trinomial

***Resource Name or #:** AE-2149-1H

***Scale:** 1:24,000

***Map Name:** Wunpost, CA 1949, Photorevised 1979

***Date:** 12/20/2010



SCALE 1:24,000

1 0.5 0 1 Miles

1,000 0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 Feet

1 0.5 0 1 Kilometers

TRUE NORTH

Appendix E – Noise Calculations

Stantec

San Ardo Noise Predictions for Single Drill Site

Equipment Noise	
Equipment Type	**Sound Pressure Level (decibel)**
Rig 14 - Drawworks Loader	86.7
Rig 14 - Generator	84.3
Rig 14 - Mud Pump (1)	77.7
Rig 14 - Mud Pump (2)	77.7
Rig 14 - Shaker (1)	56.4
Rig 14 - Shaker (2)	56.4
Rig 14 - Air Valve	68.9
Rig 350 kW Generator	82
Rig Mud Pump	69
Vacuum Trucks	85
Bulk Trucks	84
Total	
All Equipment	**92***

*Total = logarithmic addition of all equipment noise levels assuming a single point source.

Distance Reduction to Property Line		
Equipment Measurement Distance (ft)	**Distance to Receiving Property (ft)**	**Decibel Reduction From Source to Property Line**
50	3,696	**37***

*Equation: 20*LOG(3696/50)

Predicted Noise Level at Receiving Property (decibel)
92-37 = 55