



**San Joaquin Valley Unified
Air Pollution Control District**

Chevron USA, Inc.

**Project Number S-1101684
State Clearinghouse Number: 2011031054**

Kern County

**Initial Study and Final Mitigated Negative
Declaration**

April 2011

**SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT
GOVERNING BOARD 2011**

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AIR POLLUTION CONTROL OFFICER:

SEYED SADREDIN



INITIAL STUDY AND FINAL MITIGATED NEGATIVE DECLARATION

THERMALLY ENHANCED OIL RECOVERY (TEOR) WELL OPERATION FOR CHEVRON USA, INC.

April 2011

Lead Agency: San Joaquin Valley Air Pollution Control District
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Fresno CA 93726-0244

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A. INTRODUCTION

The San Joaquin Valley Unified Air Pollution Control District (District) has received an Authority to Construct (ATC) application from Chevron USA, Inc. (permitted stationary source S-2010) for a thermally enhanced oil recovery (TEOR) operation with up to 130 wells. Eighty (80) of the wells are new and fifty (50) are existing conventional wells with pumping jacks that will be converted to steam enhanced wells as temperature of the reservoir increases.

All 130 wells will be operated with closed casing vents and produced fluids will be directed to the existing permitted crude oil storage tanks equipped with a vapor control system (Permitted Source S-2010-23) capable of reducing VOC emissions by at least 99% by weight.

B. PURPOSE AND AUTHORITY

The District has discretionary approval power over the project via its Permits Required Rule (Rule 2010) and New and Modified Stationary Source Review Rule (Rule 2201). No other Agency is known to have discretionary approval over the Project. As such, the District is the public agency having principal responsibility for approving the Project and serves as Lead Agency; California Environmental Quality Act (CEQA) Guidelines §15367.

CEQA requires each public agency to adopt objectives, criteria, and specific procedures consistent with CEQA Statutes and the CEQA Guidelines for administering its responsibilities under CEQA, including the orderly evaluation of projects and preparation of environmental documents. The District adopted its *Environmental Review Guidelines* (ERG) in 2001. The ERG was prepared to comply with this requirement and is an internal document used to comply with CEQA.

The basic purposes of CEQA are to:

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities.
- Identify the ways that environmental damage can be avoided or significantly reduced.
- Prevent significant, avoidable damage to the environment by requiring changes in projects through use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.



Under CEQA the Lead Agency is required to:

- Conduct preliminary reviews to determine if applications are subject to CEQA [CCR §15060].
- Conduct review to determine if projects are exempt from CEQA [CCR §15061].
- Prepare Initial Studies for projects that may have adverse environmental impacts [CCR §15063].
- Determine the significance of the environmental effects caused by the project [CCR §15064].
- Prepare Negative Declarations or Mitigated Negative Declarations for projects with no significant environmental impacts [CCR §15070].
- Prepare, or contract to prepare, EIRs for projects with significant environmental impacts [CCR §15081].
- Adopt reporting or monitoring programs for the changes made to projects or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment [PRC §21081.6 & CCR §15097].
- Comply with CEQA noticing and filing requirements.

C. PROJECT BACKGROUND INFORMATION

Project Description

Chevron USA, Inc. proposes to install 130 thermally enhanced oil production wells in its Lost Hills production field. The Lost Hills Oilfield boundary consists of 31.25 square miles. The wells will be a combination of subjecting existing wells to steam, which does not currently occur, and drilling of new wells that will also be completed in the thermally enhanced production zone.

The eighty (80) new wells will be operated as free flowing cyclic steam enhanced oil wells. The fifty (50) existing wells will be operated as conventional steam enhanced oil wells, retaining their subsurface pumps and surface pumping jacks. There are no plans to steam the well bores of the existing wells, which may benefit from the steam injected into the well bores of the new wells.

The project will be located on property currently occupied by Chevron USA, Inc. which historically has been allowed for the exploration and production of oil. The project site is zoned A-Exclusive Agriculture, and is within the existing boundaries of the Lost Hills Oilfield as designated by the California Department of Oil, Gas and Geothermal Resources (DOGGR).

The project includes construction of eighty (80) total new wells within the existing Lost Hills Oilfield. Construction of twenty-five (25) wells is expected to occur over an eight



month period in 2011. If this phase of development is successful, fifty-five (55) new wells will be constructed in the two year period of 2014, 2015. The construction related activities include well pad preparation, commutes, drilling of new wells and installation of piping and electrical systems to support the production of oil from the wells.

All 130 proposed wells will be operated with closed casing vents and produced fluids will be directed to crude oil storage tanks equipped with a vapor control system capable of reducing VOC emissions by at least 99% by weight. The major source of new operational emissions is fugitive emissions from piping components associated with the wells and ancillary facilities including exempt pressure vessels (<100 bbl in capacity), optional sulfur removal system, and exempt relief tank (<1100 gallons). The applicant will be required to monitor the number of fugitive emissions components and resulting emissions and to implement an inspection and maintenance (I&M) program consistent with the requirements of District Rule 4401.

The project will not result in any new operational mobile source emissions. Employees at the existing Chevron USA, Inc. Lost Hills Oilfield will man and maintain the project as needed.

Process Description

Chevron USA's facility in the Lost Hills production field includes light oil and gas production equipment. Chevron USA Inc. applied for an ATC for a thermally enhanced oil recovery (TEOR) operation with up to 130 wells. The subject wells' casings will be operated with closed casing vents. Liquid and gas from the wells will flow as a combined mixture to storage tanks under 99% vapor control.

Fifty of the 130 wells are existing wells and are currently not steam enhanced. The 80 additional wells included in the ATC are new and designed to flow without mechanical pumping units, using steam injection as in the process described below.

Low Permeability Shallow Cyclic Thermal Production (LPSCTP) is defined as operations in shallow, low-permeability reservoirs, produced primarily or exclusively by intermittent steam injection above the reservoir fracture gradient, alternated with crude oil production from the same wells. Steam is injected at high temperatures to decrease the viscosity of the crude oil in the reservoir. The lower the crude oil viscosity, the higher the potential for oil production and recovery from the reservoir. During the "injection cycle", high temperature steam is injected into a well for a period of time to heat the reservoir. The well is then placed on the "soak cycle" to allow for heat to transfer to the reservoir to decrease crude oil viscosity. Then the same well is placed on the "production cycle" and the well is placed on flowback. The wells flow a mixture of crude oil, water and steam using the energy remaining from the high temperature steam injected during the "injection cycle". The injection-soak-production energy behavior is similar to that of inflating a balloon and letting the energy back out.



Project Location

The project is located in Section 29 of Township 26S and Range 21E. This location is within the boundaries of the existing Lost Hills Oilfield, as designated by the California Department of Oil, Gas, and Geothermal Resources (DOGGR). Figure 3 shows the project, and Lost Hills Oilfield boundary.

General Plan Designation and Zoning

The project site designation and zoning is Exclusive Agriculture (A). Figure 4 shows the current designation and zoning.

Surrounding Land Uses and Setting

The project is within the existing Lost Hills oilfield operation. Surrounding areas outside the boundaries of the oilfield are used for agricultural purposes.

The District has verified that the proposed project is not within 1,000 feet of the outer boundary of any schools. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to the project.



Other Public Agencies Whose Approval Is Required

Kern County Planning Department

Grading permits and other applicable building permits from the Kern County Planning and Building Department will be acquired prior to commencement of site work.

California Regional Water Quality Control Board (RWQCB)

Outside of the Class II brine injection wells permitted by the California Department of Oil, Gas & Geothermal Resources (DOGGR), the project will result in no waste or water discharge, hence no approvals from the California Regional Water Quality Control Board (RWQCB) will be required. Also, no streambed or lake alternations will occur as a result of this project.

California Department of Transportation (Caltrans)

No encroachment permits are required from the California Department of Transportation (Caltrans).

California Department of Fish and Game (DFG)

Biological Surveys by certified biologists have been conducted on the project site and will be augmented this spring where appropriate. In addition, within thirty (30) days prior to ground disturbance at each unique location, supplemental surveys will be conducted by trained personnel. Chevron's policy is to avoid areas where biological species may be impacted. Any requirements and approvals will be obtained through the California Department of Fish and Game and/or United States Fish and Wildlife Service.

California Division of Oil, Gas and Geothermal Resources (DOGGR)

The DOGGR injection well permit review program requires consistency with the Safe Drinking Water Act's Underground Injection Control regulations for Class II injection wells. The review, which covers each discrete cyclic steam oil well and each brine injection well, ensures that the project will not have a significant impact on water resources. Under this program, the DOGGR will issue Permits to Drill (and program approval) for Class II steam injection wells and brine injection wells. Additional permits are required to "re-work" existing wells. Well abandonment does not require a permit, but notification to the DOGGR is required.



D. DECISION TO PREPARE A MITIGATED NEGATIVE DECLARATION

The District has considered the environmental effects of the project and has determined that with mitigation the project will have a less than significant impact on the environment. Project design elements and mitigation measures that reduce the project's impact on the environment would be enforced through:

- District conditions of approval, permit conditions and offset requirements.

Consistent with CEQA requirements, the District has prepared an Initial Study and determined that a Mitigated Negative Declaration would be appropriate for the project.



Figure 1

Regional Location within the SJVAB

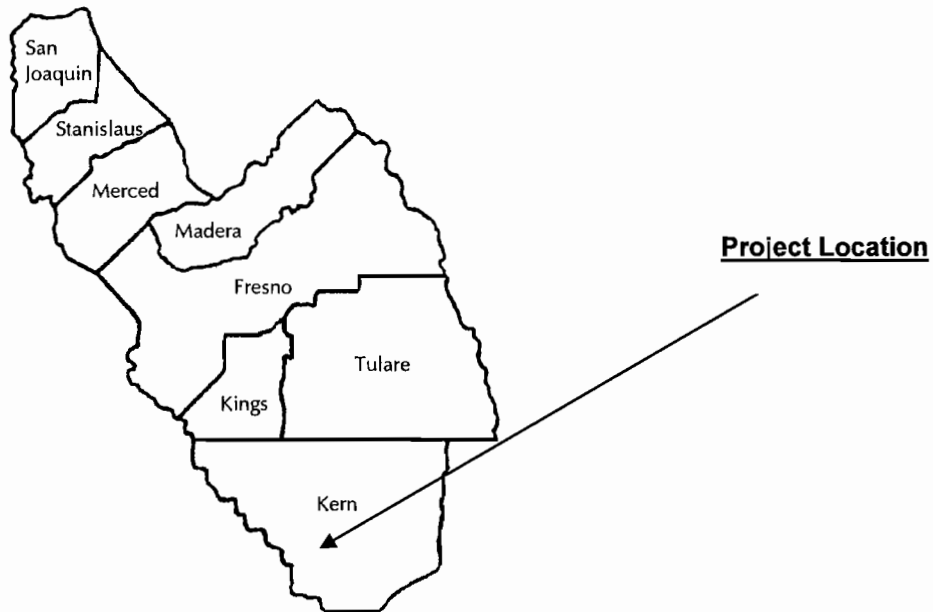


Figure 2

Lost Hills Oilfield Site and Vicinity Map

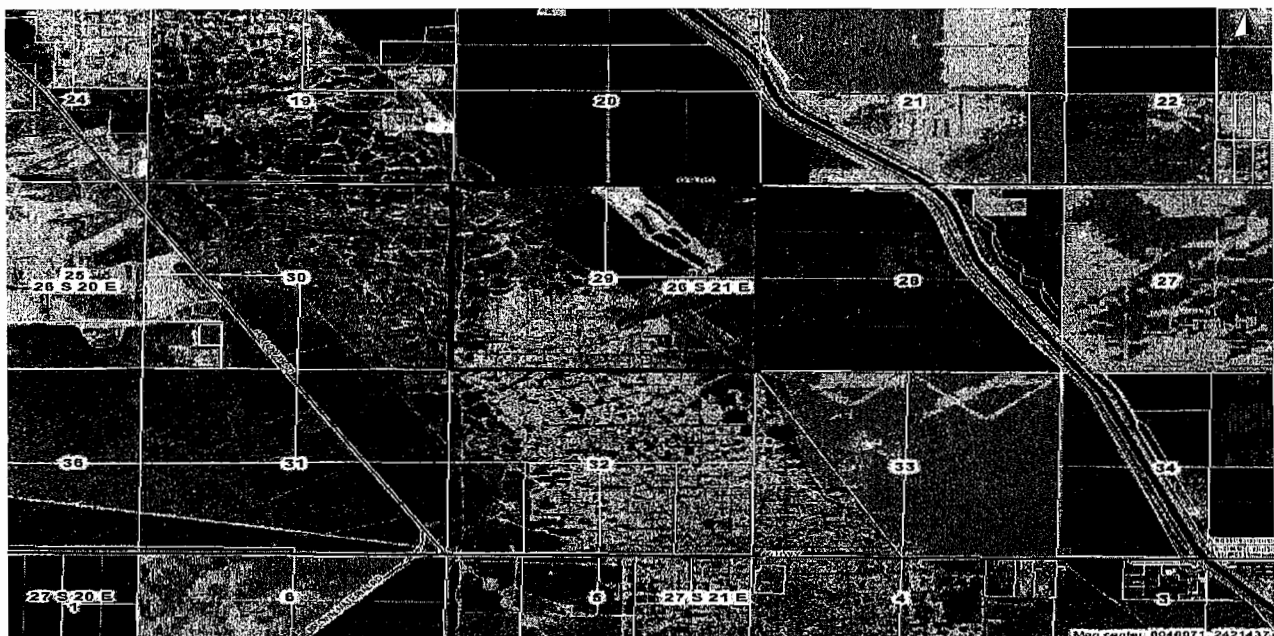
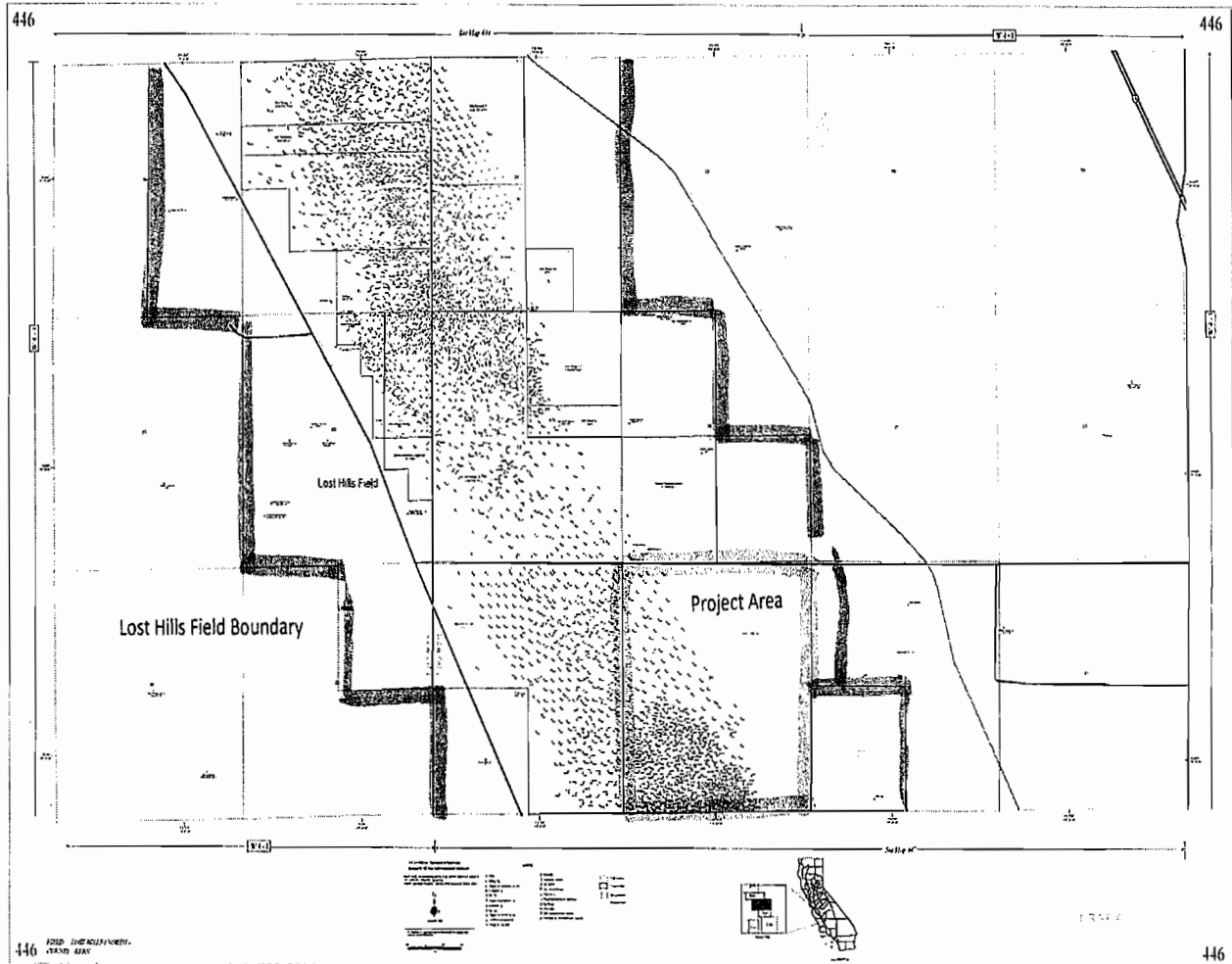




Figure 3

Project Site Map – Lost Hills Oilfield





E. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

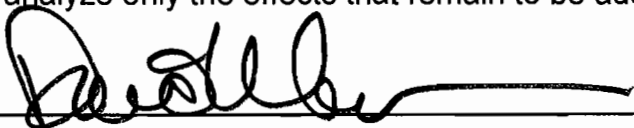
The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- | | | |
|--|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture Resources | <input type="checkbox"/> Air Quality |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology/Soils |
| <input type="checkbox"/> Hazards & Hazardous Materials | <input type="checkbox"/> Hydrology/Water Quality | <input type="checkbox"/> Land Use/Planning |
| <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Noise | <input type="checkbox"/> Population/Housing |
| <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation/Traffic |
| <input type="checkbox"/> Utilities/Service Systems | <input type="checkbox"/> Mandatory Findings of Significance | |

F. DETERMINATION

I certify that the project was independently reviewed and analyzed and that this document reflects the independent judgment of the District.

- 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 the mitigation measures described on an attached sheet have been added to the project. A MITIGATED NEGATIVE DECLARATION has been 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 significant effect(s) 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, if the effect is a "potentially significant impact" or "potentially significant unless mitigated." An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

Signature: 

Date: APR 27 2011

Printed name: David Warner, Director of Permit Services



G. ENVIRONMENTAL IMPACT CHECKLIST

I. AESTHETICS <u>Would the Project</u>	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?				X
b) Substantially damage scenic resources, including, but not limited to trees, rock, outcroppings, and historic buildings within a state scenic highway?				X
c) Substantially degrade the existing visual character or quality of the site and its surroundings?				X
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			X	

a) Have a substantial adverse effect on a scenic vista?

No Impact. The project will be located on property currently occupied by Chevron USA, Inc. which historically has been allowed for the exploration and production of oil. The project site is within the existing boundaries of the Lost Hills Oilfield as designated by the California Department of Oil, Gas, and Geothermal Resources (DOGGR) as shown in Figure 3, and is consistent with current and surrounding land uses. Furthermore, the project site is already on an existing site operation and is not within a scenic vista. Thus, no impacts in this regard would occur.

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

No Impact. The project will be located on property currently occupied by Chevron USA, Inc. which historically has been allowed for the exploration and production of oil. The project site is within the existing boundaries of the Lost Hills Oilfield as designated by the California Department of Oil, Gas and Geothermal Resources (DOGGR) as shown in Figure 3, consistent with current and surrounding land uses. Furthermore, the project site is already on an existing site operation and thus contains no scenic resources such as rock croppings, trees, or historic buildings. Thus, no impacts in this regard would occur.



c) Substantially degrade the existing visual character or quality of the site and its surrounding?

No Impact. The project will be located on property currently occupied by Chevron USA, Inc. which historically has been allowed for the exploration and production of oil. The project site is within the existing boundaries of the Lost Hills Oilfield as designated by the California Department of Oil, Gas, and Geothermal Resources (DOGGR) as shown in Figure 3, consistent with the current and surrounding land uses. Furthermore, the project site is already developed for the exploration and production of oil and will not degrade the existing visual character or quality of the site. Thus, no impacts in this regard would occur.

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

Less Than Significant Impact. Ground preparation activities will be conducted during daylight hours only. However, actual drilling of new and conversion of existing wells will primarily be 24 hour operations. Lighting impacts associated with the drilling and workover rigs, will be temporary (i.e. only during active constructions). Once the well work is completed, there will be no rig on site and hence no lighting. These types of activities are consistent with the current land uses. Thus, impacts from light and glare are expected to be less than significant.



<p>II. AGRICULTURE AND FOREST RESOURCES</p> <p>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 (1197) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agricultural 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 Resource Board. Would the project:</p>	<p>Potentially Significant Impact</p>	<p>Less Than Significant Impact With Mitigation Incorporated</p>	<p>Less Than Significant Impact</p>	<p>No Impact</p>
<p>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?</p>				<p>X</p>
<p>b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?</p>			<p>X</p>	
<p>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 Resource Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104 (g))?</p>				<p>X</p>
<p>d) Result in the loss of forest land or conversion of forest land to non-forest use?</p>				<p>X</p>
<p>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?</p>				<p>X</p>



- 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?***

No Impact. The land is zoned A-Exclusive Agriculture and the Kern County Zoning Ordinance allows for the exploration and production of oil. This project will occur within the existing Lost Hills Oilfield boundaries and is an allowed use. Thus, this project will not convert farmland to non-agricultural use.

- b) ***Conflict with existing zoning for agricultural use, or a Williamson Act contract?***

Less Than Significant Impact. The District recognizes a minimal portion to the northeast corner (Parcel-NE 1/4, Section 29, Township 26S, Range 21E) of the project site is under Williamson Act contract. However, Chevron USA, Inc. owns the entire site and will not construct or install wells on the portion that is under the Williamson Act contract. The project site is within the existing oilfield boundaries as designated by the California Department of Oil, Gas, and Geothermal Resources (DOGGR), that allows for the exploration and production of oil, consistent with current and surrounding land uses. Thus, this project will have a less than significant impact.

- c-e) ***Conflict with existing zoning for, or cause rezoning of, forest land (as defined in the Public Resources Code section 12220 (g)), timberland (as defined by Public Resource Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104 (g))? Result in the loss of forest land or conversion of forest land to non-forest use? 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?***

No Impact. The project will be located on property currently occupied by Chevron USA, Inc. which historically has been allowed for the exploration and production of oil. The project site is within the existing boundaries of the Lost Hills Oilfield as designated by the California Department of Oil, Gas, and Geothermal Resources (DOGGR) as shown in Figure 4, consistent with the current and surrounding land uses. The site is zoned A-Exclusive Agriculture and allows for the exploration and production of oil. Thus, no impacts in these regards would occur.



III. AIR QUALITY Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?		X		
b) Violate any air quality standard or contribute substantially to an existing or Projected air quality violation?			X	
c) 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?			X	
d) Expose sensitive receptors to substantial pollutant concentrations?			X	
e) Create objectionable odors affecting a substantial number of people?				X

The District is tasked with implementing programs and regulations by the Federal Clean Air Act and the California Clean Air Act. In that capacity, the District has prepared plans to attain federal and state ambient air quality standards. The District has established thresholds of significance for criteria pollutant emissions, which are based on federal offset requirements for stationary sources. The District's Thresholds of Significance for determining whether project emissions would have a significant adverse impact on air quality are: 10-ton per year reactive organic gases (ROG), which includes emissions of volatile organic compounds (VOC); 10-ton per year oxides of nitrogen (NOx), and 15-ton per year particulate matter smaller than 10 micrometers (PM10).

Stationary sources in the District are subject to some of the toughest regulatory requirements in the nation. Emission reductions achieved through implementation of federal offset requirements are a major component of the District's air quality plans. Thus, projects with emissions below the thresholds of significance for criteria pollutants would be determined to "not conflict or obstruct implementation of the District's air quality plans."

Project Details

Chevron USA, Inc. proposes to install a 130 thermally enhanced oil production wells in its Lost Hills production field. The Lost Hills Oilfield boundary consists of 31.25 square miles. The wells will be a combination of subjecting existing wells to steam, which does



not currently occur, and drilling of new wells that will also be completed in the thermally enhanced production zone.

The eighty (80) new wells will be operated as free flowing cyclic steam enhanced oil wells. The fifty (50) existing wells will be operated as conventional steam enhanced oil wells, retaining their subsurface pumps and surface pumping jacks. There are no plans to steam the well bores of the existing wells, which may benefit from the steam injected into the well bores of the new wells.

Construction Impacts

The proposed project includes construction of eighty (80) total new wells within the existing Lost Hills Oilfield. Construction of twenty-five (25) wells is expected to occur over an eight month period in 2011. Construction of the proposed wells will not overlap with operation and if this phase of development is successful, fifty-five (55) new wells will be constructed in the two year period of 2014 and 2015. The construction related activities include well pad preparation, commutes, drilling of new wells and installation of piping and electrical systems to support the production of oil from the wells. As such, Table 1 below represents the annual construction emissions for the project in the years 2011, 2014 and 2015.

Table 1 – Construction Emissions Table

Annual Construction Emissions - (2011, 2014, 2015)	NOx (tons/year)	PM₁₀ (tons/year)	VOC (tons/year)
Construction	24.7	1.8	2.8
Required Offsets (ERCs)	14.7*	0	0
Mitigation Incorporated	Yes	No	No
Total Emissions After Mitigation	10.00	1.8	2.8
Significance Threshold	10.00	15.00	10.00
Exceeds CEQA Significance Threshold?	No	No	No

*Permanent ERCs amortized over 17-year project life.

As demonstrated in Table 1, Emission Reduction Credits (ERCs) will be surrendered to the District (prior to ground disturbance activities) to offset short-term construction related impacts to below the District’s Threshold of Significance of 10 tons per year NOx. When emission reduction credits are retired, the emission reduction is expressed in tons per year and is permanent for the life of the project. Therefore, when ERCs are used to mitigate short-term impacts, such as construction related emissions, it is appropriate to amortize those emissions over the life of the project. Chevron USA Inc. provided detailed information supporting an average 17-year project life for thermally



enhanced oil recovery wells in the project area. Therefore, the amount of ERCs to be surrendered by Chevron USA, Inc. to offset the increase in construction NOx emissions is calculated as:

$$\frac{24.7 \text{ [Sum of NOx emissions (tons/year)]} - 10.00 \text{ [District NOx Significance Threshold (tons/year)]}}{17 \text{ [Project Life (years)]}}$$

= 0.86 tons/year (Amortized NOx Emissions)

Thus, Chevron USA, Inc. will surrender ERCs in the amount of 0.86 tons NOx to mitigate the project's three (3) years of construction related emissions to below the District's Threshold of Significance for NOx.

Operational Impacts

Mobile Source Emissions: Employees at the existing Chevron USA Inc. Lost Hills Oilfield will man and maintain the project as needed. Therefore, the project will not result in any new mobile source emissions.

Stationary Source Emissions: All 130 proposed wells will be operated with closed casing vents and produced fluids will be directed to crude oil storage tanks equipped with a vapor control system capable of reducing VOC emissions by at least 99% by weight. The major source of new operational emissions is fugitive emissions from piping components associated with the wells and ancillary facilities including exempt pressure vessels (<100 bbl in capacity), optional sulfur removal system, and exempt relief tank (< 1100 gallons). The applicant will be required to monitor the number of fugitive emissions components and resulting emissions and to implement an inspection and maintenance (I&M) program consistent with the requirements of District Rule 4401.

The District has conducted an Engineering Evaluation (EE) for the project, available upon request, which shows that project related fugitive emissions would increase operational VOC emissions by 17.26 tons per year. Chevron is a major stationary source with a Title V permit, thus is required to offset all project related increases in stationary source emissions. VOC offset requirements for this project, were calculated at an offset ratio of 1.5 to 1. As presented in Table 2 - *Operational Emissions and Offset Requirements*, Chevron will be required to surrender VOC ERCs totaling 25.89 tons.



Table 2 - Operational Emissions and Offset Requirements

Project Emissions	NOx (tons/year)	PM ₁₀ (tons/year)	VOC (tons/year)
Stationary Source	0	0	17.26
Offset Requirements	n/a	n/a	*25.89
Total Emissions After Offsets	0	0	-8.63
Significance Threshold	10.00	15.00	10.00
Exceeds Significance Threshold?	No	No	No

*Offset requirements for this project, were calculated at an offset ratio of 1.5 to 1

a) Conflict with or obstruct implementation of the applicable air quality plan?

Less Than Significant With Mitigation Incorporated. As summarized in Table 1 and Table 2, criteria pollutant emissions associated with project construction and operation will be reduced and mitigated to below the District's Thresholds of Significance. Thus, the project does not conflict with the implementation strategy of the San Joaquin Valley Regional Air Quality Management Plans (2008 PM 2.5 Plan; 2007 8-Hour Ozone Plan; 2007 PM10 Maintenance Plan; 2006 PM10 SIP; 2004 1-Hour Ozone SIP; 2003 PM10 SIP).

Operational stationary source emissions of volatile organic compounds (VOC) will be reduced by surrendering Emission Reduction Credits (ERCs) for 25.89 tons VOC. ERCs must be surrendered to the District before operating the equipment proposed under the Authority to Construct permit. No mitigation required.

❖ **AIR-1 Mitigation Measure.** Construction related nitrogen oxides (NOx) emissions will be mitigated by surrendering Emission Reduction Credits (ERCs) for 2.58 tons of NOx emissions. ERCs must be surrendered to the District prior to any ground disturbance activities.

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less Than Significant Impact. Determination of whether project emissions would violate any ambient air quality standard is largely a function of air quality dispersion modeling. If project emissions would not exceed state and federal ambient air quality standards at the project's property boundaries, the project would be considered to not violate any air quality standard or contribute substantially to an existing or projected air quality violation.



The project has the potential to contribute to the possible violation of an existing air quality standard or an existing or projected air quality violation. However, given that the Lost Hills Oilfield boundary consists of 31.25 square miles, it is unlikely that emissions from the proposed 130 wells would exceed state and federal ambient air quality standards at the project's property boundaries. Therefore, through a combination of project design elements, permit conditions and surrendering emission reduction credits, impacts on air quality would be considered less than significant.

c) *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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?*

Less Than Significant Impact. By its very nature, air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development. Future attainment of state and federal ambient air quality standards is a function of successful implementation of the District's attainment plans. Consequently, the District's application of thresholds of significance for criteria pollutants is relevant to the determination of whether a project's individual emissions would have a cumulatively significant impact on air quality. If a project's emissions would be less than the thresholds of significance for criteria pollutants the project would not be expected to result in a cumulatively considerable net increase of any criteria pollutant for which the District is in non-attainment under the applicable federal or state ambient air quality standards.

As discussed above, the project emissions are below the District's Thresholds of Significance. Therefore, project related emissions would have a less than significant impact on air quality.

d) *Expose sensitive receptors to substantial pollutant concentrations?*

Less Than Significant Impact. Under the Clean Air Act, toxic air contaminants (TACs) are airborne pollutants that may be expected to result in an increase in mortality or serious illness or which may pose a present or potential hazard to human health. Potential health impacts from TACs include long-term health effects such as cancer, birth defects, neurological damage, or genetic damage; or short-term effects such as eye watering, respiratory irritation, throat pain and headaches. TACs may also be referred to as hazardous air pollutants (HAPs). There are currently more than 900 substances classified as TACs by United States Environmental Protection Agency (U.S. EPA) and Air Resources Board (ARB). Air Quality problems occur when sources of TACs and sensitive receptors are located in proximity to one another.



TACs can be separated into carcinogens and non-carcinogens based on the nature of the physiological degradation associated with exposure to the pollutant. For regulatory purposes, carcinogens are assumed to have no safe threshold below which health impacts would not occur. Cancer risk is expressed as excess cancer cases per one million exposed individuals.

Non-carcinogens differ in that there is generally assumed to be a safe level of exposure below which no negative health impact would occur. These levels are determined on a pollutant-by-pollutant basis. Acute and chronic exposure to non-carcinogens is expressed by using a Hazard Index (HI), which is the ratio of expected exposure levels to acceptable health-acceptable exposure levels.

The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, 1987, Connelly) was enacted in 1987, and requires stationary sources to report the type and quantities of certain substances routinely released into the air. The goals of Air Toxics "Hot Spots" Act are to collect emission data, to identify facilities having localized impacts, to ascertain risks to acceptable levels. AB 2588 requires air districts to establish the prioritization score threshold at which facilities are required to prepare a health risk assessment. In establishing priorities, an air district must consider potency, toxicity, quantity, and volume of hazardous materials released from the facility, the proximity of the facility to potential receptors, and any other factors that the district determines may indicate that the facility may pose a significant risk.

In implementing its responsibilities under AB 2588, the District Governing Board adopted notification procedures, including prioritization score thresholds, for notifying the public of significant carcinogenic and non-carcinogenic health risks. The District concludes that use of the existing prioritization score thresholds to establish thresholds of significance under CEQA Guidelines section 15064.7 is an appropriate and effective means of promoting consistency in significance determinations within the environmental review process. The District Thresholds of Significance for determining whether project emissions would expose sensitive receptors to substantial pollutant concentrations are:

- Carcinogens: Probability of contracting cancer for the Maximally Exposed Individual exceeds 10 in one million.
- Non-Carcinogens: Ground Level concentrations of non-carcinogenic toxic air contaminants would result in a Hazard Index greater than 1 for the Maximally Exposed Individual.

The District performed a Risk Management Review (RMR) analysis to determine possible health impacts from the project's permitted stationary source emissions on the nearest sensitive receptors. A Health Risk Assessment (HRA) is not required for a project with a prioritization score of less than 0.05. As demonstrated in the



engineering evaluation incorporated herein, the prioritization score is less than 0.05. Therefore, no further analysis is required and the project is approved without Toxic Best Available Control Technology (T-BACT). Thus, impacts are expected to be less than significant.

e) *Create objectionable odors affecting a substantial number of people?*

No Impact. While offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and the District. Any project with the potential to frequently expose members of the public to objectionable odors should be deemed to have a significant impact. Due to the subjective nature of odor impacts, the number of variables that can influence the potential for an odor impact, and the variety of odor sources, there is no quantitative or formulaic methodologies to determine if potential odors would have a significant impact. Rather, projects must be assessed on a case-by-case basis.

The air contaminants which may be emitted at the project have no objectionable odors associated with stationary source operations. Diesel exhaust from construction activities may generate odors. However, they would be temporary in nature and would unlikely affect a substantial number of people. A review of the Districts Compliance complaint database revealed no received odor complaints against the Chevron USA Lost Hills Oilfield. Therefore, the District concludes that there is no substantial evidence of record to support a conclusion that the project would create objectionable odors affecting a substantial number of people.



IV. BIOLOGICAL RESOURCES Would the Project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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 Game or U.S. Fish and Wildlife Service?		X		
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service?		X		
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				X
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?		X		
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
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?				X

The Lost Hills Oilfield boundary consists of 31.25 square miles, and Chevron USA Inc. has precautionary measures in place for species identified prior to all ground-disturbing activities. Buffer distances have been recommended by Chevron's



qualified biological contractor prior to ground disturbance activities as shown in Table 3 below.

Table 3 – Recommended Buffer Distances

San Joaquin Kit Fox Dens:	Pupping Dens (occupied)	n/a - Chevron USA Inc. shall contact California Dept. of Fish & Game (CDFG) and United States Fish & Wildlife Service (USFWS).
	Pupping Dens (unoccupied)	200 feet
	Known	100 feet
	Potential	50 feet
Blunt-Nosed Leopard Lizard:	-	300 feet (contact CDFG and USFWS for further guidance at discretion of qualified biologist)
Giant Kangaroo Rat Burrows:	-	100 feet
Tipton Kangaroo Rat Burrows:	-	100 feet
San Joaquin Antelope Squirrel Burrows:	-	50 feet
Other Sensitive Species:	-	As determined by a qualified biologist

Chevron USA Inc. has species specific avoidance and minimization measures in place for the following species known to be on the grounds of the oilfield that include: Blunt-nosed leopard lizard, non-listed covered reptile species, San Joaquin kit fox, American badger, San Joaquin antelope squirrel, Giant and Tipton kangaroo rat, Short-nosed kangaroo rat or San Joaquin pocket mouse. To minimize adverse effects, Chevron USA will undertake all measures, as applicable to each specific species as identified in Chevron's current approach to avoid "take" of listed animal species throughout their project boundaries. (For Minimization Measures, see Chevron USA Biological Species Information).

Chevron USA maintains standards for protecting plant species through minimization and avoidance measures. Spring rare plant surveys would be conducted by a qualified biologist for projects in low disturbance areas, within the disturbance area whenever a project schedule allows for surveys during the appropriate season. Habitat evaluations outside of the optimum season would be relied upon for determining potential impacts when seasonal surveys are not conducted. Rare plant populations would be permanently marked for avoidance whenever possible. In relation, if avoidance is not possible, a qualified biologist would recommend minimization measures with guidance from the United States Fish & Wildlife Service (USFWS) and/or California Department of Fish & Game (CDFG), as appropriate. Chevron USA has identified plant species to be of common on oilfield operations



that include: San Joaquin woolly thread and the California jewelflower. To avoid “take” of plant species, Chevron USA complies with all U.S. Fish and Wildlife Service & California Department of Fish & Game recommendations for assessment, analysis, and protection of resources.

- 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 Game or U.S. Fish and Wildlife Service?***

Less Than Significant With Mitigation Incorporated. A Biological Survey and Habitat Impact analysis was conducted on the proposed project site (April 22, 2010 – McCormick Biological, Inc.). The results of the analysis demonstrated sensitive plant species were not anticipated to be present within the project area. In addition, sensitive wildlife species were not observed during the time the survey was conducted, and based on the lack of small mammal burrows within the project site and roadway edges, and the lack of Blunt-nosed Leopard Lizard (BNLL) observations in the project area during previous California Department of Fish & Game (CDFG) protocol BNLL surveys, impacts to these species are not anticipated.

Chevron USA implements a Certified Biological Representative (CBR) training program for its Health, Environment, and Safety staff and selected contractor representatives, along with consulting with qualified biological contractors. In any event that further investigation is necessary, Chevron USA complies with all U.S. Fish & Wildlife Services (USFWS) and/or California Department of Fish and Game (CDFG) recommendations for assessment, analysis, and protection of biological resources.

After evaluation of the project site, it is reasonable to conclude the project should not result in direct impacts to threatened or endangered species provided standard Chevron precautionary measures are implemented and mitigation measures are incorporated.

- ❖ **BIO-1 Mitigation Measure.** Within 30 days before any ground disturbance activities on the project site, a qualified registered biologist shall conduct a focused survey to determine the presence/absence of potential impacts on sensitive species on-site. The survey shall be conducted in accordance with the standard protocol of U.S. Fish and Wildlife Service (USFWS) & California Department of Fish & Game (CDFG).



- b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?**

Less Than Significant With Mitigation Incorporated. A Biological Survey and Habitat Impact analysis was conducted on the proposed project site (April 22, 2010 – McCormick Biological Inc.). The results of the analysis demonstrated, sensitive species were not observed during the time of the survey and would not impact riparian habitat. After evaluation of the project site, it's reasonable to conclude the project would not result in direct impacts to sensitive species and riparian habitat provided that Chevron's precautionary measures are implemented.

- ❖ **BIO-2 Mitigation Measure.** Within 30 days before any ground disturbance activities on the project site, a qualified registered biologist shall conduct a focused survey to determine the presence/absence of potential impacts on sensitive species and riparian habitat.

- c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?**

No Impact. The project will be located on property currently occupied by Chevron USA, Inc. which historically has been allowed for the exploration and production of oil. The project site is within the existing boundaries of the Lost Hills Oilfield as designated by DOGGR, consistent with current and surrounding land uses. The District concludes that there is no substantial evidence of record to support a conclusion that construction and operation of the project would impact federally protected wetlands.

- 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?**

Less Than Significant With Mitigation Incorporated. A Biological Survey and Habitat Impact analysis was conducted on the proposed project site (April 22, 2010 – McCormick Biological, Inc.). The results of the analysis demonstrated there were no observed wildlife species during the survey. After evaluation of the project site, it's reasonable to conclude the project would not result in direct impacts on the movement of any native resident or migratory fish or wildlife species, corridors, or nursery sites. Chevron USA, Inc. will implement standard precautionary measures



and mitigation measures incorporated herein, that will reduce the projects impact to less than significant.

- ❖ **BIO-3 Mitigation Measure.** Within 30 days before any ground disturbance activities on the project site occur, a qualified registered biologist shall conduct a focused survey to determine the presence/absence of potential impacts on the movement of any native resident or migratory fish or wildlife species, corridors, or nursery sites.

e) *Conflict with any local applicable policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

No Impact. The project will be located on property currently occupied by Chevron USA, Inc. which historically has been allowed for the exploration and production of oil. The project site is within the existing boundaries of the Lost Hills Oilfield as designated by DOGGR, consistent with current and surrounding land uses. The District concludes that there is no substantial evidence of record to support a conclusion that the construction and operation of the project would conflict with any local policies or ordinances protecting biological resources.

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

No Impact. The project site is not located within the boundaries of any Habitat Conservation Plans (HCP), Multiple Species Habitat Conservation Plans (MSHCP) or National Community Conservation Plans (NCCPS). The site is not located within any United States Fish and Wildlife Service (USFWS) designated critical habitat. Thus, no impacts in this regard would occur.



V. CULTURAL RESOURCES Would the Project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in '15064.5?				X
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to '15064.5?		X		
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		X		
d) Disturb any human remains, including those interred outside of formal cemeteries?				X

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

No Impact. The project will be located on property currently occupied by Chevron USA, Inc. which historically has been allowed for the exploration and production of oil. The project site is within the existing boundaries of the Lost Hills Oilfield as designated by DOGGR, consistent with current and surrounding land uses. The District concludes that there is no substantial evidence of record to support a conclusion that construction and operation of the project would impact any historical resources.

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

Less Than Significant With Mitigation Incorporated. The project will be located on property currently occupied by Chevron USA, Inc. which historically has been allowed for the exploration and production of oil. The project site is within the existing boundaries of the Lost Hills Oilfield as designated by DOGGR, consistent with current and surrounding land uses. Prior to developing a specific location such as well sites or equipment facilities, locations are reviewed to determine if there are any potentially impacted archaeological resources. In the event surface surveys, digging or scraping indicate that archaeological resources may be present, work is halted until the significance and extent of the find can be recovered by a qualified archaeologist for study. Chevron USA, Inc. maintains this process throughout Chevron's San Joaquin Valley Business Unit.



- ❖ **CR-1 Mitigation Measure.** Should archaeological resources be identified on the project site during any ground disturbing activities related to the project, all ground disturbing activities within 100 feet of the discovery shall cease. Chevron USA, Inc. shall notify and retain a qualified archaeologist to provide an evaluation of the find. Chevron USA, Inc. shall determine whether avoidance is necessary and feasible in light of the factors such as the nature of the find, project design, costs, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery) shall be instituted. Work may proceed on the project site once the evaluation of the find is complete by the qualified archaeologist.

c) *Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?*

Less Than Significant With Mitigation Incorporated. The project will be located on property currently occupied by Chevron USA, Inc. which historically has been allowed for the exploration and production of oil. The project site is within the existing boundaries of the Lost Hills Oilfield as designated by DOGGR, consistent with current and surrounding land uses. Chevron USA's only known paleontological sites in the Southern San Joaquin Valley are the McKittrick tar pits and Shark's Tooth Hill. However, none of identified Southern San Joaquin Valley locations are part of the project. Prior to developing a specific location such as well sites or equipment facilities, locations are reviewed to determine if there are any potentially impacted paleontological resources. In the event surface surveys, digging or scraping indicate that paleontological resources may be present, work is halted until the significance and extent of the find can be recovered by a qualified paleontologist for study. Chevron USA, Inc. maintains this process throughout Chevron's San Joaquin Valley Business Unit.

- ❖ **CR-2 Mitigation Measure.** Should paleontological resources be identified on the project site during any ground disturbing activities related to the project, all ground disturbing activities within 100 feet of the discovery shall cease. Chevron USA, Inc. shall notify and retain a qualified paleontologist to provide an evaluation of the find. Chevron USA, Inc. shall determine whether avoidance is necessary and feasible in light of the factors such as the nature of the find, project design, costs, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery) shall be instituted. Work may proceed on the project site once the evaluation of the find is complete by the qualified paleontologist.



d) Disturb any human remains, including those interred outside of formal cemeteries?

No Impact. The project will be located on property currently occupied by Chevron USA, Inc. which historically has been allowed for the exploration and production of oil. The project site is within the existing boundaries of the Lost Hills Oilfield as designated by DOGGR, consistent with current and surrounding land uses. The District concludes that there is no substantial evidence of record to support a conclusion that construction and operation of the project would impact human remains.



VI. GEOLOGY / SOILS Would the Project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	-	-	-	-
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				X
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?				X
iv) Landslides?				X
b) Result in substantial soil erosion or the loss of topsoil?			X	
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?				X
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?				X
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?				X

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

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

No Impact. The potential for extensive surface rupture is unlikely to occur since no known earthquake faults have occurred in the project area. Potentially active



faults are located within the southern San Joaquin Valley region. However it is unlikely that ground rupture would occur at the project site, since it's not located within an Alquist-Priolo Earthquake Fault Zone or within 500 feet of a known active fault trace. Thus, no impacts in this regard would occur.

ii) Strong seismic ground shaking?

Less Than Significant Impact. Although this project is not located near active or potentially active faults, any impacts could potentially induce ground shaking but is unlikely to occur at the project site. However, compliance with California seismic design requirements would ensure that the project site would not expose persons or property to strong seismic ground shaking hazards. Thus, impacts are considered to be less than significant.

iii) Seismic-related ground failure, including liquefaction?

No Impact. The project is not located in a liquefaction hazard area. Compliance with California seismic design requirements would ensure the project site would not expose property or persons to liquefaction hazards. Thus, no impacts in this regard would occur.

iv) Landslides?

No Impact. The project will not result in landslides. The project will be located within the Chevron USA Lost Hill Oilfield boundaries, where the site currently allows for the exploration and production of oil. Due to the present nature of the project site and lack of nearby steep slopes, the potential for rock falls or landslides to impact the site in the event of an earthquake is very minimal. Thus, no impacts in this regard would occur.

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

Less Than Significant Impact. Construction of the project will involve ground-disturbance activities that include: well pad preparation, drilling of wells, installation of piping, and electrical systems to support the production of oil from the wells. Construction activities are consistent with the current land use and operations, which has allowed for the production of oil. Any potential impacts to soil erosion will be reduced by compliance with Kern County Planning and Building Department requirements. Thus, impacts are considered less than significant.



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

No Impact. The project will be located on property currently occupied Chevron USA, within the existing Lost Hills Oilfield boundaries as designated by DOGGR. The project site is consistent with current land use which has historically been used for oil production. The project will not be located on an unstable geological unit or soil. Thus, no impacts in this regard would occur.

- d) ***Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?***

No Impact. The project is not located on expansive soil. The project site is consistent with current land use which has historically been used for oil production and therefore, would not create substantial risks to life or property. Thus, no impact in this regard would occur.

- 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?***

No Impact. The project includes operation of 130 thermally enhanced oil production wells within the existing Lost Hills Oilfield. The wells will be a combination of subjecting existing wells to steam, which does not currently occur, and drilling of new wells that will also be completed in the thermally enhanced production zone. The project will not require septic tanks or wastewater disposal systems. Thus, no impacts in this regard would occur.



VII. GREENHOUSE GAS EMISSIONS Would the Project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X	

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

Less Than Significant Impact. Assembly Bill (AB) 32 was adopted establishing a cap on statewide greenhouse gas emissions and sets forth the regulatory framework to achieve the corresponding reduction in statewide emissions levels. In executing its legislative mandate under AB32, the California Air Resources Board (CARB) developed a Scoping Plan. The Scoping Plan contains the main strategies California will use to reduce greenhouse gas (GHG) from Business-as-Usual (BAU) emissions projected from 2020 levels back down to 1990 levels. Business-as-Usual is the projected emissions caused by growth, without any greenhouse gas reduction measures. CARB determined that a 29% reduction from BAU is necessary to achieve the 1990 GHG emissions level.

On December 17, 2009, the District adopted the policy “*District Policy – Addressing GHG Emissions Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency*”. The policy was developed to assist Lead Agencies, project proponents, permit applicants, and interested parties in assessing and reducing the impacts of project specific GHG emissions on global climate change.

The approach in the policy relies on the use of Best Performance Standards (BPS) that would be applicable to projects that result in increased GHG emissions. Use of BPS is a method of streamlining the CEQA process of determining significance and is not a required emission reduction measure. Projects implementing BPS would be determined to have a less than cumulatively significant impact. Otherwise, demonstration of a 29 percent reduction in GHG emissions, from business-as-usual (BAU), is required to determine that a project would have a less than cumulatively significant impact consistent with GHG emission reduction targets established in the Air Resources Board’s AB 32 Scoping Plan.



Construction Impacts

Construction related greenhouse gas emissions in the form of CO₂ will result from temporary, short-term construction activities (i.e., engine exhaust emissions). BPS has not been established for construction equipment therefore, construction related GHG emissions were quantified. The project will include construction of eighty (80) new thermally enhanced oil recovery wells that will result in 2,332.7 metric tons of CO₂. Fifty (50) existing wells will operate as conventional steam enhanced oil wells, retaining their subsurface pumps and surface pumping jacks, therefore no new construction emissions will occur from these existing wells.

Given the uncertainty in predicting the environmental half-life of atmospheric CO₂, the District determined it was appropriate to amortize the construction related GHG emissions over the life of the project. Chevron USA, Inc. provided detailed information that demonstrates a 17-year project life of an average thermally enhanced oil recovery well. As such, the District amortized construction related GHG emissions over a 17-year project life as presented below.

$$\frac{2,332.7 \text{ [Sum of Construction GHG emissions (metric tons)]}}{17 \text{ [Project Life (years)]}}$$

= 137.2 Total Construction CO₂e (metric tons/year)

Annual Construction Greenhouse Gas Emissions
137.2 metric tons CO ₂ e/year

Project specific greenhouse gas emissions less than or equal to 230 metric tons-CO₂e/year are considered to be equivalent to zero, per District Policy (APR-2015). Therefore, it is reasonable to conclude construction related GHG emissions for the project will have a less than cumulatively significant impact.

Operational Impacts

For this project, operational greenhouse gas emission impacts will result from stationary source emissions. Project stationary sources include the operation of eighty (80) new thermally enhanced oil recovery wells and fifty (50) existing wells. The fifty (50) existing wells operated as conventional steam enhanced oil wells, retaining their subsurface pumps and surface pumping jacks, were determined to emit the same greenhouse emissions pre-project as post-project. There are no plans to steam the well bores of the existing wells, which may benefit from the steam injected into the well bores of the new wells. Thus, for the existing wells there will be no increase in greenhouse gas emissions. Employees at the existing Chevron USA Inc. Lost Hills Oilfield will man and maintain the project as needed. Thus, no increase in mobile source greenhouse gas emissions are expected. The District has



performed an Engineering Evaluation evaluating the potential increase in greenhouse gas emissions from the eighty (80) new operational stationary sources, as described below:

$$\begin{aligned} & \text{❖ [80 new wells/130 total wells] X 94.6 lb TOC/day x 0.375 GHG/TOC x 23 lb-} \\ & \text{CO}_2\text{e per lb-CH}_4 \text{ X 365 days/yr x ton/2000 lb} \\ & = 92 \text{ tons CO}_2\text{e/yr} \end{aligned}$$

$$92 \text{ short tons-CO}_2\text{e/year x 0.9072 metric tons/short ton} = \underline{83 \text{ metric tons CO}_2\text{e}}$$

Annual Operational Greenhouse Gas Emissions
83 metric tons CO ₂ e/year

Project specific greenhouse gas emissions less than or equal to 230 metric tons-CO₂e/year are considered to be equivalent to zero, per District Policy (APR-2015). Therefore, it's reasonable to conclude operational related GHG emissions for the project will have a less than cumulatively significant impact.

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

Less Than Significant Impact. The County of Kern has not adopted a greenhouse gas Climate Change Action Plan yet, therefore this project will not conflict with any adopted plans, policies or local regulations. As shown in the above greenhouse gas analysis, the project would have a less than significant impact per District Policy. Therefore, this project will not conflict with District policy for addressing GHG impacts nor with any other applicable plans, policies or regulations. As such, GHG emission impacts are considered to be less than significant.

VIII. HAZARDS & HAZARDOUS MATERIALS	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the Project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?				X
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?			X	



c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
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?				X
e) For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard for people residing or working in the Project area?				X
f) For a Project within the vicinity of a private airstrip, would the Project result in a safety hazard for people residing or working in the Project area?				X
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				X

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

No Impact. The project will be located on property currently occupied by Chevron USA. The project site is in an area that has historically been used for oil production (within the Lost Hills Oilfield) as designated by DOGGR. The proposed project will not use hazardous materials, therefore it will not create a significant hazard to the public or environment through transportation, use, or disposal of hazardous materials. Thus, no impacts in this regard would occur.

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?



Less Than Significant Impact. The project will not use hazardous materials. However, compliance with existing safety standards in the construction and long-term operation of the wells will minimize any potential hazard to the public and the environment. Occupational safety standards exist in Federal and State laws to minimize worker safety risks from both physical and chemical hazards in the workplace. The California Division of Occupational Safety and Health (Cal/OSHA) is responsible for developing and enforcing safety standards and assuring worker safety in the handling and use of hazardous materials. Among other requirements, Cal/OSHA obligates many businesses to prepare Injury and Illness Prevention Plans and Chemical Hygiene Plans. The Hazard Communication Standard requires that workers be informed of the hazards associated with the materials they handle, if need be. Thus, impacts are expected to be less than significant.

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

No Impact. This project will not be located within one-quarter mile of an existing or proposed school. This project site is within a 31.25 square mile boundary of the Lost Hills Oilfield, which historically has been used for oil production. Thus, no impacts in this regard would occur.

- d) *Be located on a site which is included on a list of hazardous materials lists compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?***

No Impact. The project will be located on property currently occupied by Chevron USA. The project site is in an area that has historically been used for oil production (within the Lost Hills Oilfield). This project is not located on a site which meets this definition of Government Code Section 65962.5, which requires specific hazardous waste facilities to submit required information to the Department of Toxic Substances Control (DTSC). Thus, no impacts in this regard would occur.

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

No Impact. The project site is in an area that has historically been used for oil production (within the Lost Hills Oilfield). This project is not located within two miles or near a public airport or public use airport or within an airport land use. The nearest public airport is the Delano Municipal Airport, which is approximately 28 miles northeast of the project. Thus, no impacts in this regard would occur.



f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working the project area?

No Impact. The project site is in an area that has historically been used for oil production (within the Lost Hills Oilfield). Paramount Farms is the nearest facility with a private airstrip, which is approximately 10 miles from the project site. Therefore, this project is not in the vicinity of a private airstrip. Thus, no impacts in this regard would occur.

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No Impact. The project will be located on property currently occupied by Chevron USA. The project site is in an area that has been historically used for oil production (within the Lost Hills Oilfield). This project would not require any physical alterations to existing public or private roadways that would impair or interfere with emergency response or evacuation. This project is consistent with current land use and will be incorporated into the operating area's current emergency response and emergency evacuation plans. Thus, no impacts in this regard would occur.

h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

No Impact. No wildlands are within close proximity of the proposed project. This project is located within the boundaries of the existing Lost Hills Oilfield. The oilfield comprises a contiguous area having a size of about 31.25 square miles. Thus, no impacts in this regard would occur.

IX. HYDROLOGY / WATER QUALITY Would the Project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?			X	
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?			X	



c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner, which would result in substantial erosion or siltation on- or off-site?				X
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?				X
e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?				X
f) Otherwise substantially degrade water quality?				X
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				X
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?				X
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				X
j) Inundation by seiche, tsunami, or mudflow				X

a) Violate any water quality standards or waste discharge requirements?

Less Than Significant Impact. Approximately 24,000 barrels of soft water will be required for injection as steam into the 80 steam wells. In an ongoing operation, approximately 24,000 barrels of water will be produced back to the surface. The proposed wells (80) are anticipated to displace approximately 50 existing waterflood wells. There are approximately 200 existing wells in Section 29 (project area) with an existing daily soft water requirement of approximately 45,000 barrels. The displacement of 50 wells will reduce this requirement by 25% to 33,750 barrels. Thus, approximately 11,250 barrels of the current water supply for Section 29 (project area) wells will be available for this project. As a result, just 12,750 barrels of the 24,000 barrels required for the project will be a new requirement.

The DOGGR injection well permit review program requires consistency with the Safe Drinking Water Act's Underground Injection Control regulations for Class II injection



wells. The permit review, which covers each discrete cyclic steam oil well and each brine injection well ensures that the project will not have a significant impact on existing water resources. Therefore the project will not result in a violation of water quality standards or waste discharge requirements, and thus has a less than significant impact.

- b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?***

Less Than Significant Impact. Approximately 24,000 barrels of soft water will be required for injection as steam into the 80 steam wells. Approximately 16,000 barrels of produced water will be softened and returned as input. The projected increase in groundwater usage from the Tulare formation would be approximately 8,000 barrels, which is softened, and added to the input to make up the 24,000 barrels required. Therefore increases in groundwater usage from the Tulare formation is not substantial, and thus has a less than significant impact.

- c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?***

No Impact. The project will be located on property currently occupied by Chevron USA. The project site is in an area that has historically been used for oil production (within the Lost Hills Oilfield). This project does not alter the existing drainage pattern of the area and does not alter any streams, rivers, or any other waterways. Thus, no impacts in this regard would occur.

- d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?***

No Impact. The project will be located on property currently occupied by Chevron USA. The project site is in an area that has historically been used for oil production (within the Lost Hills Oilfield). This project does not alter the existing drainage pattern of the area and does not alter any streams, rivers, or any other waterways. It would not introduce a new flood hazard and would not necessitate any new flood control projects. Thus, no impacts in this regard would occur.



e) 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?

No Impact. The project will be located on property currently occupied by Chevron USA. The project site is in an area that has historically been used for oil production (within the Lost Hills Oilfield). Precipitation at the project site is rarely sufficient to cause runoff and it is not likely that storm water will leave the property. Therefore the project will not create or contribute to runoff water. Thus, no impacts in this regard would occur.

f) Otherwise substantially degrade water quality?

No Impact. The project will be located on property currently occupied by Chevron USA. The project site is in an area that has historically been used for oil production (within the Lost Hills Oilfield). Precipitation at the project site is rarely sufficient to cause runoff and it is not likely that such amount of storm water will degrade water quality. Therefore, this project will not degrade water quality. Thus, no impacts in this regard would occur.

g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

No Impact. The project will be located on property currently occupied by Chevron USA. The project site is in an area that has historically been used for oil production (within the Lost Hills Oilfield). The project does not include housing, and it is located outside the 100-year flood zone. Thus, no impacts in this regard would occur.

h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?

No Impact. The project will be located on property currently occupied by Chevron USA. The project site is in an area that has historically been used for oil production (within the Lost Hills Oilfield). The operation of 130 thermally enhanced oil production wells will not expose people or structures to flooding, nor would they impede or redirect flood flows to cause a flood hazard area. In addition, the project is located outside the 100-year flood zone. Thus, no impacts in this regard would occur.



i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

No Impact. The project will be located on property currently occupied by Chevron USA. The project site is in an area that has historically been used for oil production (within the Lost Hills Oilfield). The operation of 130 thermally enhanced oil production wells will not expose people or structures to flooding. The project is located outside the 100 year flood zone. Thus, no impacts in this regard would occur.

j) Inundation by seiche, tsunami, or mudflow?

No Impact. The project site is in Kern County which is not identified in the Tsunami Inundation maps by the California Geological Survey as a county with inundation risk. The project site is in an area that has historically been used for oil production (within the Lost Hills Oilfield) and is located outside the 100-year flood zone. It is unlikely that inundation would occur. Thus, no impacts in this regard would occur.

X. LAND USE AND PLANNING Would the Project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?				X
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				X
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?				X

a) Physically divide an established community?

No Impact. The project will be located on property currently occupied by Chevron USA, which historically has allowed for the exploration and production of oil. The project site is within the existing boundaries of the Lost Hills Oilfield as designated by DOGGR, consistent with current and surrounding land uses. The proposed project will not divide an established community. Thus, no impacts in this regard would occur.



- b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?**

No Impact. The project is zoned A – Exclusive Agriculture. This project is consistent with current land use in an area that has historically been used for oil production. Therefore it will not conflict with any land use plans, policies, or regulations. Thus, no impacts in this regard would occur.

- c) Conflict with any applicable habitat conservation plan or natural community conservation plan?**

No Impact. The project will be located on property currently occupied by Chevron USA, which historically has allowed for the exploration and production of oil. The project site is within the Lost Hills Oilfield as designated by DOGGR, consistent with current and surrounding land uses. The project does not conflict with any applicable habitat or natural community conservation plans. Thus, no impacts in this regard would occur.

XI. MINERAL RESOURCES Would the Project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X
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?				X

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

No Impact. The project will be located on property currently occupied by Chevron USA, which historically has allowed for the exploration and production of oil. The project site is within the Lost Hills Oilfield as designated by DOGGR, consistent with current and surrounding land uses. The proposed project will not result in the loss of a known mineral resource that is of value to the region or state. In fact, it will allow for the development and increased value of the reserves. Thus, no impact in this regard would occur.



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?

No Impact. The project will be located on property currently occupied by Chevron USA, which historically has allowed for the exploration and production of oil. The project site is within the Lost Hills Oilfield as designated by DOGGR, consistent with current and surrounding land uses. The project does not result in the loss of availability of locally important mineral resources. Thus, no impact in this regard would occur.

XII. NOISE Would the Project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?				X
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?			X	
c) A substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project?				X
d) A substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project?			X	
e) For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?				X
f) For a Project within the vicinity of a private airstrip, would the Project expose people residing or working in the Project area to excessive noise levels?				X



a) *Exposure of persons to or generation of noise levels in excess of standards established in any applicable plan or noise ordinance, or applicable standards of other agencies?*

No Impact. The project will be located on property currently occupied by Chevron USA, which historically has allowed for the exploration and production of oil. The project site is within the existing boundaries of the Lost Hills Oilfield, which is already developed for its current use and operations. Therefore, the project will not expose persons to noise levels in excess of any established standards, plans or ordinances. It will be consistent with current land use and existing operations. Thus, no impacts in this regard would occur.

b) *Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?*

Less Than Significant Impact. The project will not expose persons to excessive ground borne vibrations or noise levels. Operation of the project will not involve any activity that will produce ground borne noise or vibration. During construction, noise levels may elevate due to equipment drilling and rig activities. However the elevation of noise is temporary, short-term and consistent with current land use and existing operations. Thus, impacts in this regard would be considered to be less than significant.

c) *A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?*

No Impact. The project will not result in any substantial permanent increase in ambient noise levels. Future noise types and volumes will be consistent with current land use and existing operations. Thus, no impacts in this regard would occur.

d) *A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?*

Less Than Significant Impact. Noise levels associated with construction activities would be higher than the ambient noise levels in the existing project site; however construction noise levels would subside once construction of the proposed project is completed. The construction activities include well pad preparation, drilling of new wells and installation of piping and electrical systems to support the production of oil from the wells. The nearest residential center is located approximately 1 mile from the project site and is not expected to be impacted by temporary increases in noise. As such, noise levels are temporary, short-term and consistent with current operations in the project area. Thus, impacts in this regard would be less than significant.



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

No Impact. Paramount Farms is the nearest facility with a private airport and is approximately 10 miles west of the proposed project. The nearest public airport to the project is the Delano Municipal Airport, which is approximately 28 miles northeast of the project, respectively. These distances preclude the possibility of the project site being adversely exposed to aviation noise. In addition, there would be no residences on the project site and operational activities would include minimal maintenance trips. Thus, no impacts in this regard would occur.

- f) **For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?**

No Impact. The project is not within the vicinity of a private airstrip. The nearest private airstrip is located within Paramount Farms, which is located approximately 10 miles west of the project. There would be no residences on the project site and operational activities would include minimal maintenance trips. Thus, no impacts in this regard would occur.

XIII. POPULATION / HOUSING Would the Project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Induce substantial 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)?				X
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X

- a) **Induce substantial 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)?**

No Impact. The project will be located on property currently occupied by Chevron USA, which historically has allowed for the exploration and production of oil. The



project site is within the existing boundaries of the Lost Hills Oilfield as designated by DOGGR, consistent with current and surrounding land uses. The project will be maintained and manned by existing personnel and therefore would not increase substantial population growth in the area. Thus, no impacts in this regard would occur.

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

No Impact. The project will be located on property currently occupied by Chevron USA, which historically has allowed for the exploration and production of oil. The project site is within the existing boundaries of the Lost Hills Oilfield as designated by DOGGR, and is already developed for its current operations which does not include any on-site housing. Thus, no impacts in this regard would occur.

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

No Impact. The project will be located on property currently occupied by Chevron USA, which historically has allowed for the exploration and production of oil. The project site is within the existing boundaries of the Lost Hills Oilfield as designated by DOGGR, and is already developed for its current operations. There is no on-site housing at the project site. Therefore, the project will not displace any people. Thus, no impacts in this regard would occur.

XIV. PUBLIC SERVICES Would the Project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable services ratios, response times or other performance objectives for any of the public services:	-	-	-	-
i) Fire protection?			X	
ii) Police protection?				X
iii) Schools?				X
iv) Parks?				X
v) Other public facilities?				X



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

i) *Fire Protection?*

Less Than Significant Impact. The project will be located on property currently occupied by Chevron USA, which historically has allowed for the exploration and production of oil. Chevron USA currently maintains Fire Prevention and Control Measures to reduce the risk of a potential fire. As such, Table 4 below presents the measures taken by Chevron USA, Inc. to enhance fire protection within the Lost Hills Oilfield. No new or altered governmental facilities would be necessary. Therefore, construction and operation of the project would have a less than significant impact on fire protection capabilities in the area.

Table 4 – Fire Prevention and Control Measures

Measure	Lost Hills - Implementation
Manuals and Guides for Fire Prevention and Response.	Yes – For Employees and Contractors
Fire Response Training.	Yes – Employees and Contractors
Fire extinguishers on vehicles.	Yes
Fire extinguishers and appliances at oil and gas storage facilities.	Yes
Permit before hot work to identify hazards.	Yes
Weed abatement programs along pipe runs and facilities.	Yes
Management training for incident response.	Yes
Annual Fire Department inspections.	Yes - County
Existing tankage for crude oil.	Yes (Cahn 3-Chevron USA Tank Facility/Cleaning Plant)
Existing natural gas facilities.	Yes (Cahn 3-Chevron USA Tank Facility/Cleaning Plant)
Front line tanks have vapor control to reduce explosive mixtures.	Yes (Cahn 3-Chevron USA Tank Facility/Cleaning Plant)
Spill control berms and basins.	Yes
Spill response plans and training.	Yes
Fractional Increase to Current Wells.	400/8,500 = 4.7%
Fire risk during drilling.	Low (mitigated by blowout prevention devices, mud circulation, and mud logging)



ii) Police Protection?

No Impact. The project will be located on property currently occupied by Chevron USA, which historically has allowed for the exploration and production of oil. The project site is within the existing boundaries of the Lost Hills Oilfield as designated by DOGGR, and is already developed for its current operations. Therefore, the project will not impact police protection capabilities in the area.

iii) Schools?

No Impact. The project will be located on property currently occupied by Chevron USA, Inc. which historically has allowed for the exploration and production of oil. The project site is within the existing boundaries of the Lost Hills Oilfield as designated by DOGGR, and is already developed for its current operations. In relation, M. Thomas Middle School (Lost Hills) is the nearest school and is approximately 1.5 miles southeast of the proposed project. Therefore, the project will not impact any public schools within the vicinity.

iv) Parks?

No Impact. The project will be located on property currently occupied by Chevron USA, which historically has allowed for the exploration and production of oil. The project site is within the existing boundaries of the Lost Hills Oilfield as designated by DOGGR, and is already developed for its current operations. Therefore, the project will not affect parks in any manner.

v) Other Public Facilities?

No Impact. The project will be located on property currently occupied by Chevron USA, which historically has allowed for the exploration and production of oil. The project site is within the existing boundaries of the Lost Hills Oilfield as designated by DOGGR, and is already developed for its current operations. Therefore, the project will not affect any other public facilities.



XV. RECREATION Would the Project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?				<p style="text-align: center;">X</p>
b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				<p style="text-align: center;">X</p>

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?

No Impact. The project consists of operating 130 thermally enhanced oil production wells within the existing Lost Hills Oilfield. The project will be maintained and manned using existing personnel. Thus, no impacts in this regard would occur.

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

No Impact. The project consists of operating 130 thermally enhanced oil production wells within the existing Lost Hills Oilfield. No recreational facilities are proposed or would be required as a result of the project. Thus, no impacts in this regard would occur.



XV. TRANSPORTATION / TRAFFIC Would the Project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation systems, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?				X
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?				X
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				X
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X
e) Result in inadequate emergency access?				X
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?				X

a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?



No Impact. The project will be located on property currently occupied by Chevron USA, Inc. which historically has been allowed for the exploration and production of oil. The project site is within the existing boundaries of the Lost Hills Oilfield, which is already developed for its current operations. The project will be maintained and manned using existing personnel. The product will be delivered through pipelines on-site. Therefore, the project will not increase the oilfield traffic that currently occurs in the area. Thus, no impacts in this regard would occur.

- b) *Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?***

No Impact. The project will be located on property currently occupied by Chevron USA, which historically has allowed for the exploration and production of oil. The project site is within the existing boundaries of the Lost Hills Oilfield, which is already developed for its current operations. The project will be maintained and manned using existing personnel. The product will be delivered through pipelines on-site. Therefore, the project will not exceed current road/highway capabilities. Thus, no impacts in this regard would occur.

- c) *Result in change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?***

No Impact. The project will be located on property currently occupied by Chevron USA, which historically has allowed for the exploration and production of oil. The project site is within the existing boundaries of the Lost Hills Oilfield, which is already developed for its current operations. The product will be delivered through pipelines on-site. Therefore, construction and operational activities will not affect air traffic patterns.

- d) *Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?***

No Impact. There will be no alterations to existing roads or intersections. The project consists of the operation of 130 thermally enhanced oil production wells within Chevron's existing Lost Hills Oilfield. The product will be transferred through pipeline on-site. Thus, no impacts in this regard would occur.

- e) *Result in inadequate emergency access?***

No Impact. There will be no change affecting emergency access. The project will not result in changes to existing pathways. The project will be located on property currently occupied by Chevron USA, which historically has allowed for the



exploration and production of oil. The project site is within the existing boundaries of the Lost Hills Oilfield, which is already developed for its current operations.

f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

No Impact. The project will be located on property currently occupied by Chevron USA, which historically has allowed for the exploration and production of oil. The project site is within the existing boundaries of the Lost Hills Oilfield, which is already developed for its current operations. In addition, the project will be maintained/manned by existing employees. Therefore, the project does not conflict with adopted policies, plans, or programs supporting alternative transportation.

XVII. UTILITIES / SERVICE SYSTEMS Would the Project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?				X
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X
d) Have sufficient water supplies available to serve the Project from existing entitlements and resources, or are new or expanded entitlements needed?				X
e) Result in a determination by the wastewater treatment provider that 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?				X



f) Be served by a landfill with sufficient permitted capacity to accommodate the Project's solid waste disposal needs?				X
g) Comply with federal, state, and local statutes and regulations related to solid waste?				X

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

No Impact. The project does not involve wastewater treatment. Excess produced water will be recycled in brine injection wells permitted by the California Department of Oil, Gas and Geothermal Resources (DOGGR). The DOGGR injection well permit program requires consistency with the Safe Drinking Water Act's Underground Injection Control regulations for Class II injection wells. The review, which covers each discrete cyclic steam oil well and each brine injection well, ensures that the project will not have a significant impact on existing water resources. Thus, no impacts in this regard would occur.

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No Impact. The project will not require or result in the construction of new water or wastewater treatment facilities. The existing facilities at Chevron's nearby Cahn 3 Oil Cleaning Plant have excess capacity to handle the anticipated volumes of oil and water. Thus, no impacts in this regard would occur.

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental impacts?

No Impact. Chevron USA, Inc. proposes to install 130 thermally enhanced oil production wells. The wells will be a combination of subjecting existing wells to steam, which does not currently occur, and drilling of new wells that will also be completed in the thermally enhanced production zone within the existing Lost Hills Oilfield. The project will not result or require construction of new stormwater drainage facilities or expansion of existing facilities. Thus, no impacts in this regard would occur.



d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

No Impact. The project will use produced water to generate steam; hence, it will have a sufficient water supply to serve the proposed project. Approximately 24,000 barrels of soft water (as steam) will be required for injection into 80 cyclic steam wells. In an ongoing operation, approximately 24,000 barrels of water will be produced back to the surface. The proposed wells are anticipated to displace approximately 50 existing waterflood wells. There are approximately 200 existing wells in Section 29 (project area) with an existing daily soft water requirement of approximately 45,000 barrels. The displacement of 50 wells will reduce this requirement by 25% to 33,750 barrels. Thus, approximately 11,250 barrels of the current water supply for Section 29 (project area) wells will be available for this project. As a result, just 12,750 barrels of the 24,000 barrels required for the project will be a new requirement.

The DOGGR injection well permit review program requires consistency with the Safe Drinking Water Act's Underground Injection Control regulations for Class II injection wells. The review, which covers each discrete cyclic steam oil well and each brine injection well ensures that the project will not have a significant impact on existing water resources. Therefore the project will have sufficient water supply available to service the project from existing resources and thus, have no impact.

e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve?

No Impact. The project provides for the exploration and production of oil and does not require or result in the construction or expansion of new water or wastewater treatment facilities. Thus, the project will not impact any wastewater treatment providers.

f-g) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? Comply with federal, state, and local statutes and regulations related to solid waste?

No Impact. The project will be located on property currently occupied by Chevron USA, which historically has allowed for the exploration and production of oil. The project site is located within the existing boundaries of the Lost Hills Oilfield, and is already developed for its current operations. The project consists of installing 130 thermally enhanced wells for oil production which would be transferred through pipelines. Therefore, the project will not impact landfill capacity. Thus, no impacts in this regard would occur.



XVIII. MANDATORY FINDINGS OF SIGNIFICANCE Would the Project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the Project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, 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?		X		
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)?			X	
c) Does the Project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?			X	

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, 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?

Less Than Significant Impact With Mitigation Incorporated. With the incorporation of required permit conditions, surrendering emission reduction credits, and mitigation measures as outlined in the initial study, the project will have a less than significant impact on air quality, biological, and cultural resources.



- 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)?**

Less Than Significant Impact. CEQA Guidelines Section 15065 states that a Lead Agency shall consider whether the cumulative impact of a project is significant and whether the effects of the project are cumulatively considerable. The assessment of the significance of the cumulative effects of the project must, therefore, be conducted in connection with the effects of past projects, other current projects, and probable future projects. Due to the nature and location of the project and consistency with environmental policies, incremental contributions to impacts are considered less than cumulatively considerable. The project is not part of any larger, planned development. Therefore, the proposed project would not contribute substantially to adverse cumulative conditions, or create any substantial indirect impacts (i.e., an increase in population that could lead to an increase need to housing, increase in traffic, air pollutants, etc.).

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

Less Than Significant Impact. The analyses of environmental issues contained in this Initial Study indicate that the project is not expected to have a substantial impact on human beings, either directly or indirectly. Mitigation measures have been incorporated in the project design to reduce all potentially significant impacts to less than significant.



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Mitigation Monitoring & Reporting

Impact	Measure Number	Significance Prior to Mitigation	Mitigation Measure	Enforcement Agency	Significance After Mitigation
Construction emissions exceed the District's thresholds of significance for NOx emissions.	AIR-1	Potentially Significant	<ul style="list-style-type: none"> Construction related nitrogen oxides (NOx) emissions will be mitigated by surrendering Emission Reduction Credits (ERCs) for 2.58 tons NOx. ERCs must be surrendered to the District prior to any ground disturbance activities. 	San Joaquin Valley Air Pollution Control District	Less than Significant
Project may potentially affect sensitive species.	BIO-1	Potentially Significant	<ul style="list-style-type: none"> Within 30 days before any ground disturbance activities on the project site, a qualified registered biologist shall conduct a focused survey to determine the presence/absence of potential impacts on sensitive species on-site. The survey shall be conducted in accordance with the standard protocol of the U.S. Fish and Wildlife Service (USFWS) & California Department of Fish and Game (CDFG). 	San Joaquin Valley Air Pollution Control District	Less Than Significant
Project may potentially affect riparian habitat.	BIO-2	Potentially Significant	<ul style="list-style-type: none"> Within 30 days before any ground disturbance activities on the project site, a qualified registered biologist shall conduct a focused survey to determine the presence/absence of potential impacts on riparian habitat. 	San Joaquin Valley Air Pollution Control District	Less Than Significant
Project may potentially affect the movement of any native resident or migratory fish or wildlife species, corridors, or nursery sites.	BIO-3	Potentially Significant	<ul style="list-style-type: none"> Within 30 days before any ground disturbance activities on the project site occur, a qualified registered biologist shall conduct a focused survey to determine the presence/absence of potential impacts on the movement of any native resident or migratory fish or wildlife species, corridors, or nursery sites. 	San Joaquin Valley Air Pollution Control District	Less Than Significant

<p>Project may potentially affect archaeological resources.</p>	<p>CR-1</p>	<p>Potentially Significant</p>	<ul style="list-style-type: none"> Should archaeological resources be identified on the project site during any ground disturbing activities related to the project, all ground disturbing activities within 100 feet of the discovery shall cease. Chevron USA, Inc. shall notify and retain a qualified archaeologist to provide an evaluation of the find. Chevron USA, Inc. shall determine whether avoidance is necessary and feasible in light of the factors such as the nature of the find, project design, costs, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery) shall be instituted. Work may proceed on the project site once the evaluation of the find is complete by the qualified archaeologist. 	<p>San Joaquin Valley Air Pollution Control District</p>	<p>Less Than Significant</p>
<p>Project may potentially affect paleontological resources.</p>	<p>CR-2</p>	<p>Potentially Significant</p>	<ul style="list-style-type: none"> Should paleontological resources be identified on the project site during any ground disturbing activities related to the project, all ground disturbing activities within 100 feet of the discovery shall cease. Chevron USA, Inc. shall notify and retain a qualified paleontologist to provide an evaluation of the find. Chevron USA, Inc. shall determine whether avoidance is necessary and feasible in light of the factors such as the nature of the find, project design, costs, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery) shall be instituted. Work may proceed on the project site once the evaluation of the find is complete by the qualified paleontologist. 	<p>San Joaquin Valley Air Pollution Control District</p>	<p>Less Than Significant</p>