



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

Chevron USA, Inc.

Project Number S-1102789

**Kern River Oil Field
Kern County**

**Initial Study and Draft
Mitigated Negative Declaration**

September, 2011

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

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**INITIAL STUDY AND DRAFT
MITIGATED NEGATIVE DECLARATION**

**Thermally Enhanced Oil Recovery Well Operation
for
Chevron USA, Inc.**

September 16, 2011

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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 U.S.A., Inc. (permitted stationary source S-1131) for the addition of 400 thermally enhanced oil production wells (specifically steam enhanced oil production wells) to the existing wells within the Kern River Oil Field. Chevron U.S.A., Inc. (hereafter referred to as CUSA) operates a Thermally Enhanced Oil Recovery (TEOR) operation in the Kern River Oil Field.

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

The project is the construction of 400 new steam enhanced crude oil production wells with 88 associated ancillary wells in the existing Kern River Oil Field. Ancillary wells include temperature observation wells and steam injection wells. For this project, each group of 100 steam enhanced crude oil production wells is projected to require 22 ancillary wells. The District has received an Authority to Construct (ATC) application from Chevron USA, Inc. (permitted stationary source S-1131) for the addition of 400 thermally enhanced oil production wells to the existing 11,000 oil production wells. The 88 ancillary wells do not require permits by the District but will require permits by other agencies. These proposed new wells will be located throughout the Kern River Oil Field within CUSA's Heavy Oil Central Stationary Source in sections of T28S R27E, T28S R28E, and T29S R28E north of Bakersfield, California.

For this project, construction of a maximum of 61 wells of all types is expected per year. The construction activities include well pad preparation, drilling of wells and installation of piping and electrical systems to support the production of oil from the wells. This project does not involve construction of additional processing facilities at the Kern River Oil Field. There are currently approximately 11,000 existing steam enhanced crude oil production wells in the Kern River Oil Field. Existing oil field facilities and resources are considered adequate to handle the proposed increase in the number of oil wells.



CUSA operates a Thermally Enhanced Oil Recovery (TEOR) operation in the Kern River Oil Field. The Kern River Oil Field is unique in that it includes areas within the designated Kern River Designated Floodway Boundary. This proposed project includes at least two identified oil production wells and five ancillary wells (i.e. steam injection wells) that would be drilled in the floodway. These two oil production wells and their ancillary wells are identified as the KCL-39 Expansion Project and KCL-10 Expansion Project. The KCL-39 Expansion Project includes one production well and two steam injection wells. The KCL-10 Expansion Project includes one oil production well and three steam injection wells.

Process Description

Steam is produced from steam generators and injected into the heavy crude oil bearing strata via injection wells to enhance the oil extraction. Heat from the steam makes the heavy crude oil less viscous; therefore, easier to pump from the well. Gasses are also produced as a result of the steaming process, and include water vapor, CO₂, CO, H₂S, and hydrocarbons. These gasses are comingled with the fluids and sent downstream along with well production and separated in separator vessels or front-line processing tanks. Oil field equipment is expected to operate 24 hours/day and 365 days/year.

Well casings for the subject wells will be operated with closed casing vents. Liquid and gas from the wells will flow as a combined mixture to tanks under 99% vapor control. Pooled production will enter master trap vessels vented to a Hydrogen Sulfide (H₂S) removal system, used as needed, and then to a field gas gathering line. An Automatic Well Test (AWT) vessel will receive production from one well at a time in a parallel track. The TEOR operation sends casing gas comingled with fluids to front-line tanks and separator vessels equipped with vapor control where the gas is eventually incinerated in approved disposal devices.

Fugitive volatile organic compounds (VOCs) are emitted from the well casing collection and control systems due to leaking components. VOC emissions from the well casing collection system are controlled with $\geq 99\%$ efficiency, in accordance with District Rule 4401 (Steam-Enhanced Crude Oil Production Wells). The vapor control consists of disposal of collected VOCs by incineration in approved devices downstream of the front-line tanks.

The proposed project would use a network of existing and new pipelines to transport oil, water, and steam. All new pipelines would be installed above ground and would be installed consistent with the existing network and standards. New pipelines would transport produced fluids to the existing tank batteries located within the Kern River Oil field. Existing tank capacity is considered adequate to support the increased oil production.



Project Location

The proposed 400 wells and the 88 ancillary wells will be located throughout the Kern River Oil Field. They could be located anywhere in following sections: 12, 13, 24, 25, and 36 of T28S R27E, in sections 7, 8, 17, 18, 19, 20, 21, 22, 27, 28, 29, 30, 31, 32, 33, 34 of T28S R28E, and in sections 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11 of T29S R28E.

The Kern River oil field is a mature oil field where the project areas and surrounding lands are characterized as highly disturbed, active oil fields with scattered patches of native and non-native vegetation. Specific locations of the wells within these sections are undetermined at this time, except for the wells to be drilled in the Kern River Designated Floodway. They are identified as the KCL-39 and KCL-10 wells projects. The KCL-39 wells are proposed to be located in Section 9, T29S, R28E and the KCL-10 wells are proposed to be located in Section 10, T29S, R28E. Potential locations would be surveyed first for the remaining wells. Once determined, specific project location would be provided when applying for a permit with the Division of Oil, Gas, and Geothermal (DOGGR). Figure 2 and Figure 5 show the oil field boundary and project boundary.

General Plan Designation and Zoning

The project site designation and zoning is Exclusive Agriculture (A). Figure 6 shows the current designation and zoning.

Surrounding Land Uses and Setting

The project is within the existing Kern River oil field operation. 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

California Department of Fish and Game (CDFG)

The CDFG has regulatory authority over projects that could result in the “take” of any species identified by the State of California as threatened or endangered. If the Project would result in the take of any identified species, an Incidental Take Permit would be required.

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

The DOGGR oversees the drilling, operation, maintenance, and plugging and abandonment of oil, natural gas, and geothermal wells, and has approval authority over



each TEOR and ancillary well. Prior to drilling any oil well or any other ancillary well (e.g.: a steam injection well) associated with such an oil well, CUSA shall first obtain all necessary Permits to Drill from the 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. Under this program and others, the DOGGR will issue Permits to Drill (and program approval) for each well. Additional permits are required to "re-work" existing wells. Well abandonment does not require a permit, but notification to the DOGGR is required.

Central Valley Flood Protection Board (formally the Reclamation Board)

The Central Valley Flood Protection Board maintains the integrity of the existing flood control system and designated floodways through the Board's regulatory by issuing permits for encroachments. An encroachment permit will be needed for the wells located in the Kern River Floodway. Prior to construction, these wells will be reviewed for approval by the Central Valley Flood Protection Board.

Kern County Planning Department

The proposed wells are permitted uses under the existing county land use designations and zoning. As such, applicable permits from the Kern County Planning and Building Department will be acquired prior to commencement of site work.

US Fish and Wildlife Service (USFWS)

The USFWS has regulatory authority over projects that could result in the "take" of any species identified as threatened or endangered. If the Project would result in the incidental take of any federally identified species, an Incidental Take Permit and/or a Habitat Conservation Plan (HCP) would be required.

US Environmental Protection Agency (US EPA)

The ATC application from CUSA for the proposed new 400 wells is for the permitted facility S-1131. This facility received their Title V Permit on December 31, 2002. This ATC application project can be classified as a Title V minor modification pursuant to Rule 2520 (Federally Mandated Operating Permits), Section 3.20, and can be processed with a Certificate of Conformity (COC). But CUSA has not requested that this ATC application be processed in that manner; therefore, CUSA will be required to submit a Title V minor modification application prior to operating under the revised provisions of the ATC issued with this project.



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 requirement;
- California Department of Fish and Game permits, if applicable, and
- California Division of Oil, Gas and Geothermal Resources permits.
- Central Valley Flood Protection Board Encroachment permits;
- Kern County conditions of approval; and
- US Fish and Wildlife Service permits, if applicable.

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

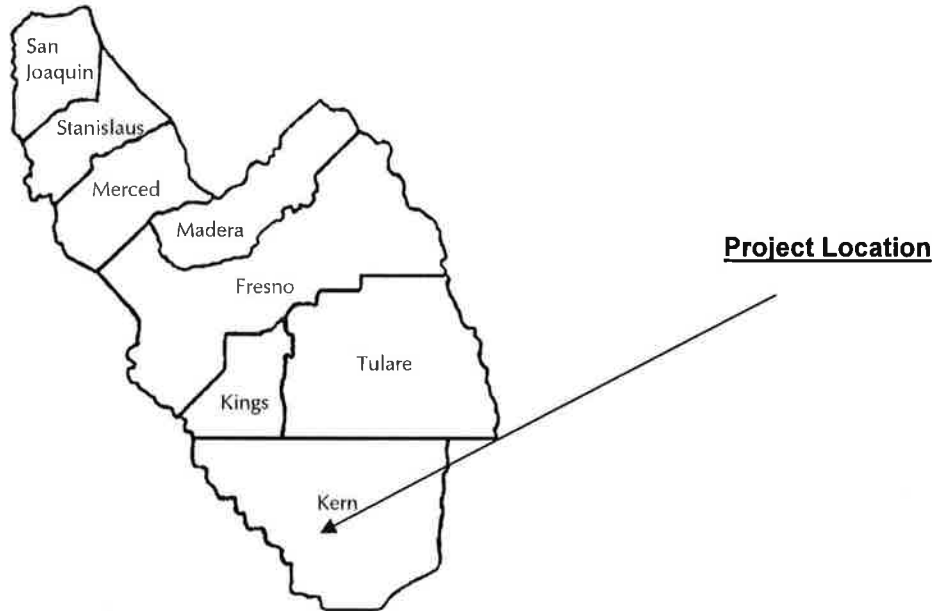


Figure 2

Kern River Oil Field

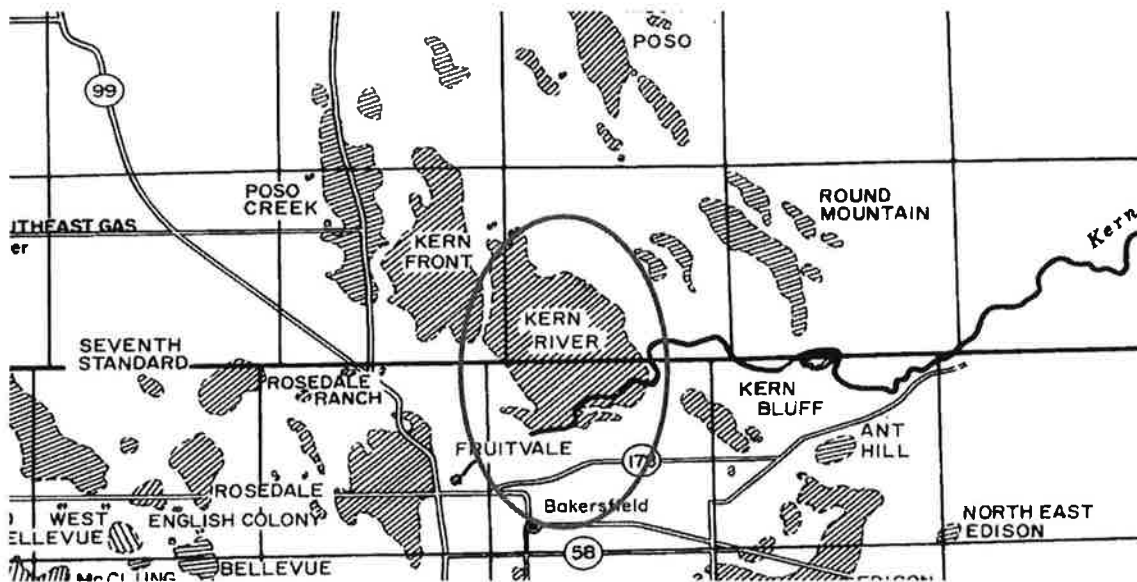




Figure 3

Kern River Oil Field as designated by the California Department of Oil, Gas, and Geothermal Resources

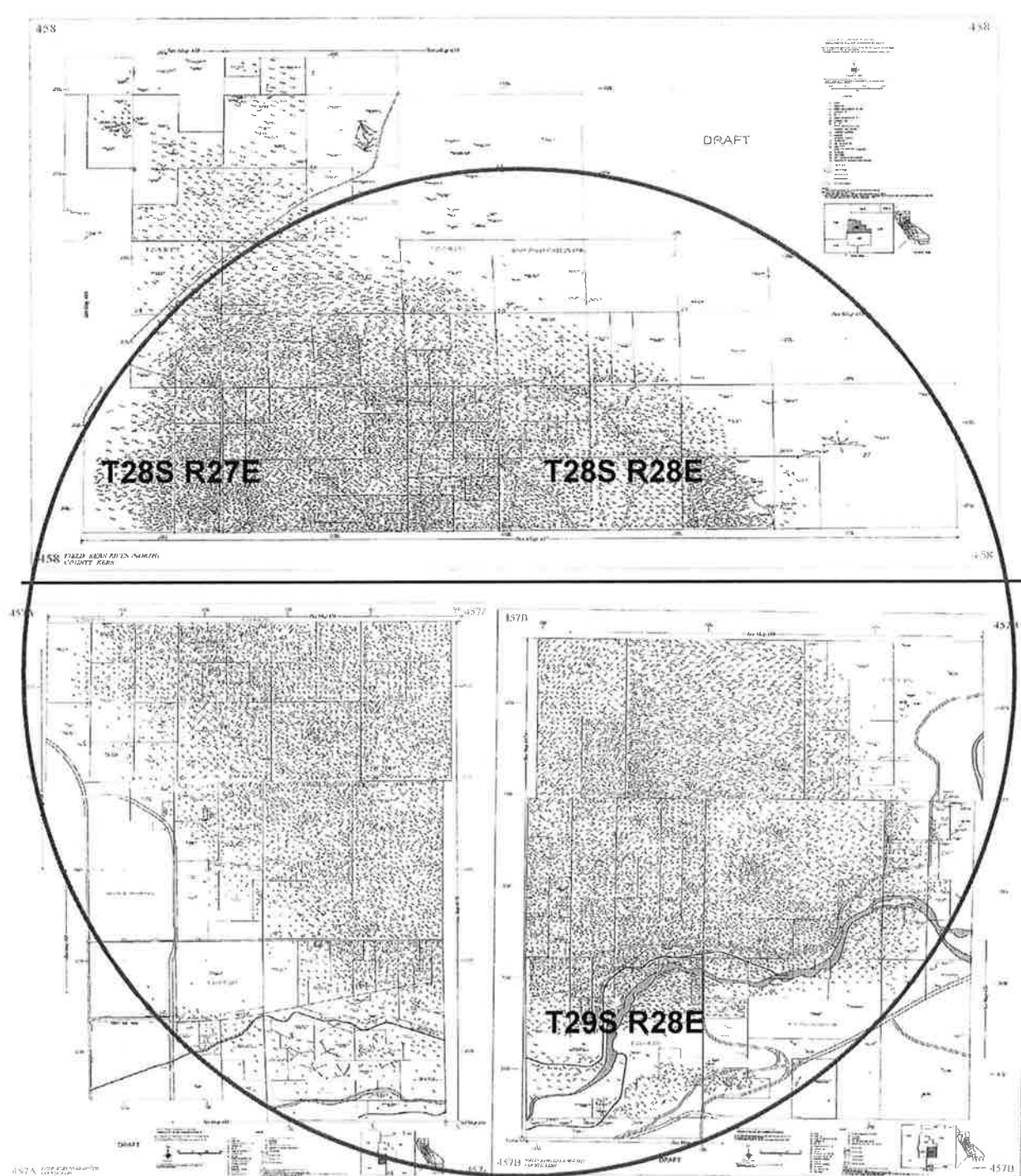




Figure 4

Aerial view of Kern River Oil Field Site



Figure 5

Project Site Map

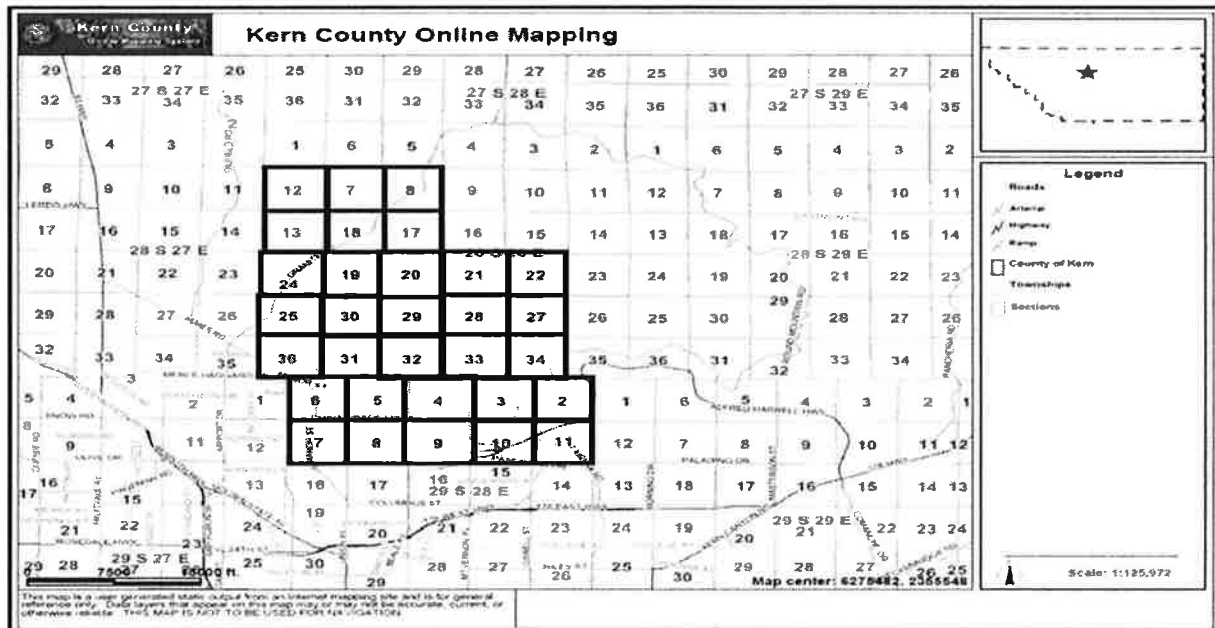
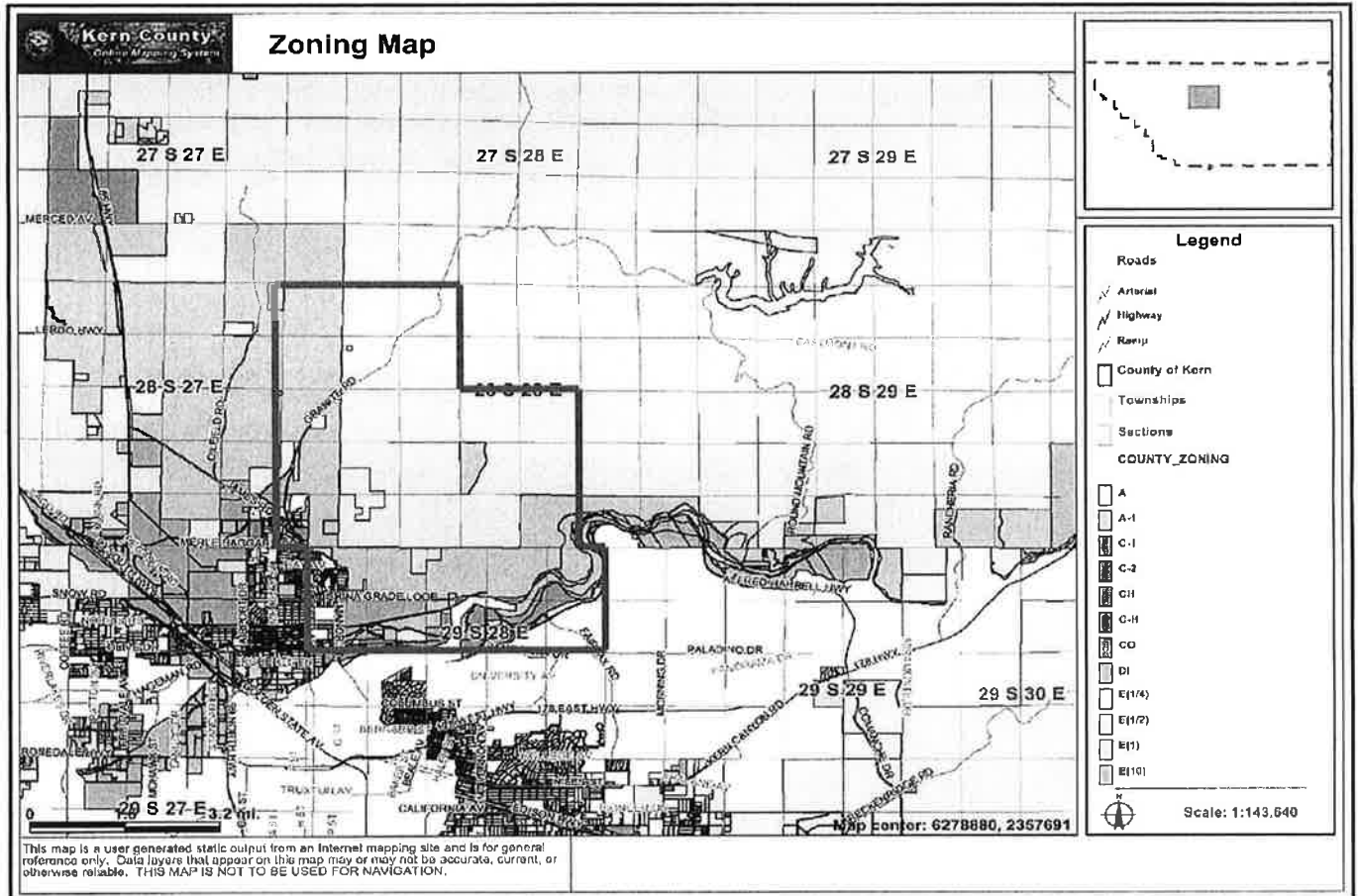




Figure 6
 Zoning Map





E. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

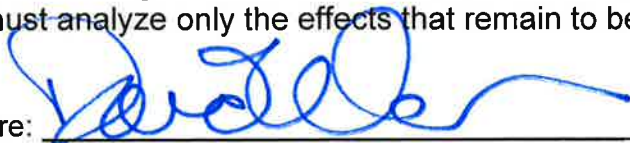
The environmental factors checked below would be potentially affected by the proposed Project, involving at least one impact that is a "Potentially Significant Impact" or "Potentially Significant Unless Mitigated", as indicated by the checklist on the following pages.

- | | | |
|--|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture Resources | <input checked="" type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input checked="" type="checkbox"/> Geology/Soils |
| <input type="checkbox"/> Hazards & Hazardous Materials | <input checked="" 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: OCT 05 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	

Items a-c (scenic vista and resources and visual quality):

Conclusion: No Impact

Discussion: The project will be located on property currently occupied by CUSA, which historically has been allowed for the exploration and production of oil. The project site is within the existing boundaries of the Kern River Oil Field as designated by the California Department of Oil, Gas, and Geothermal Resources (DOGGR), as shown in Figure 2, 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. It also contains no scenic resources such as rock outcroppings, trees, or historic buildings within a state scenic highway. The construction sites of the proposed wells will be adjacent to thousands of existing, similar wells. Thus, the project will not degrade the existing visual character or quality of the site and its surroundings, nor damage scenic resources, nor have an adverse effect on a scenic vista.

The project site designation and zoning where the wells will be located is Exclusive Agriculture (A). Figure 6 shows the current designation and zoning.

Mitigation: None



Item d (light and glare):

Conclusion: Less Than Significant Impact

Discussion: The construction of the 400 new wells is anticipated to take up to eight years total but construction for each well depends on individual circumstances. The construction activities include well pad preparation, drilling of wells and installation of piping and electrical systems to support the production of oil from wells. Ground preparation activities will be conducted during daylight hours only. Actual drilling of new and conversion of existing wells and setting the pump and rods may include 24-hour operations. However, lighting associated with the drilling and workover rigs will be minimal and temporary (i.e. only during active operations). Light fixtures and exterior lighting on the project may be used on a regular basis for safety and security reasons but would be consistent with the normal well maintenance and replacement operations for the thousands of adjacent existing wells. These construction activities are consistent with the current land use. Thus, impacts from light and glare due to this project are expected to be less than significant.

Mitigation: None

References:

California Department of Transportation. *California Scenic Highway Mapping System*.
Website: http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm

California Department of Conservation. *Farmland Mapping & Monitoring Program*.
Website: <http://www.conservation.ca.gov/dlrp/fmmp/Pages/Index.aspx>

Chevron U.S.A., Inc. Larry Landis, Engineer/Specialist, Health, Environment and Safety.
Electronic and Telephone Communication.

County of Kern. *Code of Ordinances, Title 19 – Zoning*. Website:
<http://www.co.kern.ca.us/planning/pdfs/KCZOMar09.pdf>

County of Kern. *Kern County Online GIS Mapping*. Website:
<http://www.co.kern.ca.us/gis/>



II. AGRICULTURE AND FOREST RESOURCES	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
<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>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>				X
<p>b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?</p>				X
<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>				X
<p>d) Result in the loss of forest land or conversion of forest land to non-forest use?</p>				X
<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>				X



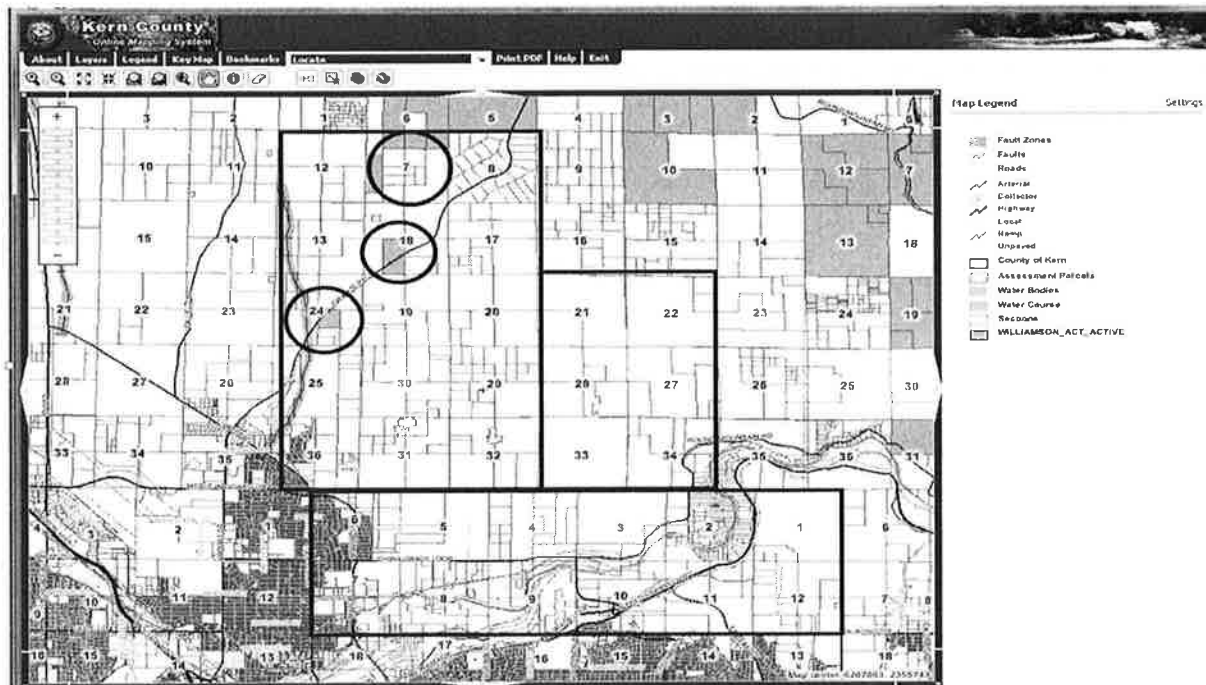
Items a-e (Agricultural resources)

Conclusion: No Impact

Discussion: The project will be located on property currently occupied by CUSA, which historically has been allowed for the exploration and production of oil and gas. The project sites are within the existing boundaries of the Kern River Oil Field as designated by the DOGGR as shown in Figure 2, consistent with the current and surrounding land uses. The site is zoned A-Exclusive Agriculture and the Kern County Zoning Ordinance allows for the exploration and production of oil and gas.

The District recognizes several portions of the project sites are under a Williamson Act contract. They are Section 24 T28S R27E, Section 7 T28S R28E, and Section 18 T28S R28E. See Figure 7 below. However, Chevron USA, Inc. owns the entire site and the construction and operation of petroleum wells on Williamson contract property is consistent with Kern County Planning Department requirements for these properties. The project site is within the existing oil field boundaries as designated by the DOGGR that allows for the exploration and production of oil, consistent with current and surrounding land uses. This project will not result in farmland related or forest lands related impacts. Thus, no impacts in this regard would occur.

Figure 7: Project sites with Active Williamson Act



Mitigation: None



References:

California Department of Conservation. *Farmland Mapping & Monitoring Program*.
 Website: <http://www.conservation.ca.gov/dlrp/fmmp/Pages/Index.aspx>

Chevron U.S.A., Inc. Larry Landis, Engineer/Specialist, Health, Environment and Safety.
 Electronic and Telephone Communication.

County of Kern. *2009 General Plan*. Website:
<http://www.co.kern.ca.us/planning/pdfs/kcgp/KCGP.pdf>

County of Kern. *Code of Ordinances, Title 19 – Zoning*. Website:
<http://www.co.kern.ca.us/planning/pdfs/KCZOMar09.pdf>

County of Kern. *Kern County Online GIS Mapping*. Website:
<http://www.co.kern.ca.us/gis/>

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



Item a (Air Quality Plans)

Conclusion: Less Than Significant with Mitigation Incorporated

Discussion: 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 stringent regulatory requirements. 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. (permitted stationary source S-1131) proposes to supplement one of its existing permits for 485 steam enhanced oil wells with closed casing vents to authorize the construction of up to 400 additional steam enhanced oil production wells and 88 ancillary wells. The project sites are located within the existing Kern River Oil Field.

Construction Impacts

For this project, construction of a maximum of 61 wells of all types is expected per year over an eight-year period starting in late 2011. Therefore, construction of the 400 wells and ancillary wells is anticipated to take up to eight years. Ancillary wells include temperature observation wells and steam injection wells. For this project, each group of 100 steam enhanced crude oil production wells is projected to require 22 ancillary wells. The proposed project will not involve the construction of any structures aside from the wells themselves. Specific well locations will be developed before applying for each drilling permit with the DOGGR. Prior to drilling any oil well or any other ancillary well (e.g.: a steam injection well) associated with such an oil well, CUSA shall first obtain all necessary Permits to Drill from the DOGGR.



The construction short-term related activities include well pad preparation, worker commutes, drilling of new wells and installation of piping and electrical systems to support the production of oil from the wells. Equipment that would be used to construct the proposed project would include off road vehicles (e.g.: a bulldozer, cranes, a roller, and backhoes), on-road vehicles (concrete trucks, drilling rigs, water truck, and tractor/trailer), and portable equipment (air compressors, generators, and welding machines). Potential off-site construction related emissions would result primarily from construction worker commute trips.

The following describes the basic process, which may vary depending on individual circumstances. For grading one well location, one to two days is estimated on average. Each well location is (civil) surveyed and staked and then a biological survey is conducted. Following mitigation (if any is required), the location is graded, consistent with dust control requirements. Following grading, conductor casing is set vertically approximately 40 feet into the ground and cemented into place. When a drilling rig becomes available, it is set up over the conductor casing and the well is drilled telescopically through the conductor casing. After the borehole is logged using wire line tools, the casing is set and cemented into place. Then the casing is perforated and the pump and rods are set, followed by the pumping jack and installation of surface pipe to carry the production. Drilling oil wells or ancillary wells in the shallow Kern River sands generally requires one to two days, depending on depth or problems that may be encountered. Table 1 below presents the annual estimated construction emissions for the project.

Table 1: Annual Construction Emissions of 61 wells per year

Project Emissions	VOC (tons/year)	NOx (tons/year)	PM10 (tons/year)
Construction Emissions	2.44	16.47	1.83
Significance Threshold	10.00	10.00	15.00
Required Offsets (ERCs)	0	6.47*	0
Total Emissions after Mitigation	2.44	10.00	1.83
Exceeds Significance Threshold in Any Year?	No	No	No

*Permanent ERCs amortized over 53-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 53-year project life for steam



enhanced oil production 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:

$$ERCs = \left(\frac{\text{Emissions tons/year} - \text{Threshold tons/year}}{\text{Project Life years}} \right) \times \text{Years of emissions}$$

$$ERCs = \left(\frac{16.47 \frac{\text{ton}}{\text{year}} \text{ NOx} - 10 \frac{\text{ton}}{\text{year}} \text{ NOx}}{53 \text{ Years}} \right) \times 8 \text{ years}$$

$$ERCs = 0.96 \frac{\text{tons}}{\text{year}} \text{ NOx}$$

Thus, Chevron USA, Inc. will surrender ERCs in the amount of 0.96 tons NOx to mitigate the project's eight (8) years of construction related emissions to below the District's Threshold of Significance for NOx.

Operational Impacts

Mobile Source Emissions: Existing employees at the CUSA Kern River Oil Field will man and maintain the wells as needed. There will be additional trips associated with the maintenance of these new wells for approximately one-year after installation.

Table 2: Operational Emissions

Project Emissions	VOC (tons/year)	NOx (tons/year)	PM ₁₀ (tons/year)
Operational Source	0.50	4.00	0.20
Significance Threshold	10.00	10.00	15.00
Exceeds Significance Threshold?	No	No	No

Stationary Source Emissions: The Project consists of the installation and operation of 400 wells and 88 ancillary steam wells. Steam is produced from steam generators and injected into the heavy crude oil bearing strata via injection wells to enhance the oil extraction. Heat from the steam makes the heavy crude oil less viscous; therefore, easier to pump from the well. Gasses are also produced as a result of the steaming process, and include water vapor, CO₂, CO, H₂S, and hydrocarbons. These gasses are



comingled with the fluids and sent downstream along with well production and separated in separator vessels or front-line processing tanks. 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. Oil field equipment is expected to operate 24 hours/day and 365 days/year.

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 barrel 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 and incorporated herein by reference, which shows that project related fugitive emissions would increase operational VOC emissions by 17.03 tons per year. CUSA is a major stationary source with a Title V permit, and 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 to 1. As presented in Table 2 - *Operational Emissions and Offset Requirements*, Chevron will be required to surrender VOC ERCs totaling 17.03 tons.

Long term emissions from the proposed project would occur as a result of the operation of the new wells and other project related oil field equipment. The oil field equipment for operating these 400 TEOR wells is subject to District permit requirements and must be equipped and operated with Best Available Control Technology. Compliance with BACT requirements will reduce project related impacts on air quality; however, BACT is mandatory, and thus not considered to constitute mitigation. Oil would be transported from the project site to the tanks within the Kern River Oil Field using the existing pipeline network.

Table 3: Operational Emissions and Offset Requirements

Project Emissions	VOC (tons/year)	NOx (tons/year)	PM₁₀ (tons/year)
Stationary Source	17.03	0	0
Offset Requirements	17.03*	n/a	n/a
Total Emissions After Offsets	0	0	0
Significance Threshold	10.00	10.00	15.00
Exceeds Significance Threshold?	No	No	No

*Offset requirements for this project are an offset ratio of 1 to 1.



As discussed above, operational stationary source emissions of VOC will be mitigated by surrendering ERCs. The ERCs must be surrendered to the District prior to the commencement of operation of the equipment proposed under the ATC.

Project related emissions of criteria pollutants would be below the District thresholds of significance and stationary source emissions would be fully offset through surrendering emission reduction credits as shown in the tables above. 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 Plan; 2004 1-Hour Ozone Plan; 2003 PM10 Plan). Therefore, through a combination of project design elements, permit conditions, and surrendering emission reduction credits, impacts on air quality would be reduced and mitigated to less than significant.

Mitigation: See mitigations noted below.

Items b and c (Air Quality Standards)

Conclusion: Less Than Significant

Discussion:

Air Quality Standards

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 property boundaries of the project, 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. Compliance with Stationary New Source Review requirements, combined with mitigation requirements and the dispersal of new wells throughout the 16 square mile areal extent of the oil field render it unlikely that emissions from the proposed project would exceed state and federal ambient air quality standards at the property boundaries of the project. Therefore, through a combination of project design elements, permit conditions and surrendering ERCs, impacts on air quality are considered less than significant.

Cumulative Impacts

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 are 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, Project emissions are below the District's thresholds of significance for criteria pollutant emissions. Therefore, project related emissions would have a less than significant impact on air quality.

Mitigations:

- ❖ **AIR-1 Mitigation Measure:** Construction related NO_x emissions will be mitigated by surrendering Emission Reduction Credits (ERCs) for 0.96 tons of NO_x emissions. ERCs must be surrendered to the District prior to any ground disturbance activities.
- ❖ **AIR-2 Mitigation Measure:** Operational related VOC emissions will be mitigated by surrendering Emission Reduction Credits (ERCs) for 17.03 tons of VOC emissions. ERCs must be surrendered to the District prior to any ground disturbance activities.

Item d (Health Risk Impacts):

Conclusion: Less Than Significant

Discussion: 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 by the US EPA and California Air Resources Board (ARB) as TACs. 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, 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 AB 2588 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 (HRA). 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 CCR § 15064.7 is an appropriate and effective means of promoting consistency in significance determinations within the environmental review process. The District’s 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 (MEI) exceeds ten (10) in one million.

Non-Carcinogens: Ground Level concentrations of non-carcinogenic TACs would result in a Hazard Index greater than one (1) for the MEI.

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. An HRA is not required for a project that has a prioritization score of less than one (1). The RMR demonstrates that the highest prioritization score is greater than one (1) and therefore a health risk assessment was required to determine the short-term acute and long-term chronic exposure from this project. The cancer exposure risk for the project is determined to be less than ten (10) in a million. Therefore, no further analysis is required and the project is approved without Toxic Best Available Control Technology (T-BACT). The District concludes that there is no substantial evidence to support a conclusion that the project would expose sensitive receptors to significant health risks.



The cancer risk for this project is shown below:

HRA Summary		
Unit	Cancer Risk	T-BACT Required
S-1131-1036-10	0.17 per million	No

Mitigation: None

Item e (Odor Impacts):

Conclusion: No impact

Discussion: 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, construction emissions are temporary in nature and, due to the distance from the nearest sensitive receptor the Project is not expected to affect a substantial number of people. The vapors from the wells will be controlled by vapor recovery; hence no objectionable odors will be created. The District has no rules or standards to odor emissions, other than its nuisance rule.

The District's *Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI)* defines a significant odor impact as either more than one (1) confirmed complaint per year averaged over a three year period or three (3) unconfirmed complaints per year averaged over a three year period. A review of the District's Compliance complaint database revealed that there hasn't been any complaint for the Kern River Oil Field. Moreover, operations similar to the proposed project have been occurring for decades at this oil field. 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.

Mitigation: None



References:

Chevron U.S.A., Inc. Larry Landis, Engineer/Specialist, Health, Environment and Safety. Electronic and Telephone Communication.

California Air Resources Board. *AB 2588 Air Toxics "Hot Spots" Program*. Website: <http://www.arb.ca.gov/ab2588/ab2588.htm>

San Joaquin Valley Unified Air Pollution Control District. September 2011. *Authority to Construct: Application Review*, Applicant No. S-1131, Project No. S-1102789. Available at San Joaquin Valley Air Pollution Control District. 1990 East Gettysburg Avenue, Fresno, CA 93611.

San Joaquin Valley Unified Air Pollution Control District. July 2011. *Risk Management Review* Applicant No. S-1131, Project No. S-1102789. Available at San Joaquin Valley Air Pollution Control District. 1990 East Gettysburg Avenue, Fresno, CA 93611.

San Joaquin Valley Unified Air Pollution Control District. Compliance database.

San Joaquin Valley Unified Air Pollution Control District. January 2002. *Guide for Assessing and Mitigation Air Quality Impacts*. Website: <http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI%20Jan%202002%20Rev.pdf>



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		



Item a (sensitive or special status species):

Conclusion: Less Than Significant with Mitigation Incorporated

Discussion: 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. 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.

The proposed 400 wells and the 88 ancillary wells will be located throughout the Kern River Oil Field. Specific locations of the wells within these sections are undetermined at this time, except for the several wells that are proposed to be drilled in the Kern River Designated Floodway. Although several wells are proposed to be located near by the floodway, proposed production pipelines would be installed above ground and most lines would located along existing oil field access roads or consistent with the existing pipeline network. The limited duration of construction activities and the minimal ground disturbance required to install these pipelines would minimize the potential for significant impacts to most sensitive plants, trees, and habitat and riparian areas.

A Biological Survey and Habitat Impact analysis was conducted on several sections of the potential well project sites (sections 13 and 24 T28S R27E and Sections 18, 19, 20, 21, 27, 28, and 34 T28S R28E) in August 2010 by McCormick Biological, Inc. The results showed wildlife habitat and/or sign observed of San Joaquin kit fox and blunt-nosed leopard lizard. This specific survey recommended additional survey and/or follow-up by a qualified biologist.

CUSA 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. CUSA utilizes a system that identifies any observed dens/burrows with pink wire flags and electronically using hand-held GPS. In any event that further investigation is necessary for each individual well site, CUSA is to comply 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.



Mitigations:

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. The compliance with the following mitigation measures would reduce potential impacts to a less than significant level.

- ❖ **BIO-1 Mitigation Measure:** 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 and riparian habitat. The survey shall be conducted in accordance with the standard protocol of California Department of Fish & Game (CDFG) and/or California Department of Fish & Game (CDFG). CUSA will notify CDFG and the US Fish and Wildlife Service (USFWS) in the event a State or Federally listed species is encountered. Results of the survey shall be made available for District inspection upon request.
- ❖ **BIO-2 Mitigation Measure:** 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 the movement of any native resident or migratory fish or wildlife species, corridors, or nursery sites. CUSA will notify CDFG and the US Fish and Wildlife Service in the event a State or Federally listed species is encountered. Results of the survey shall be made available for District inspection upon request.
- ❖ **BIO-3 Mitigation Measure:** CUSA to notify USFWS and CDFG immediately in the event that the Project avoidance measures fail and there is a take of a threatened or endangered species. No activities shall occur until Incidental Take authorization has been obtained from USFWS and CDFG. Documentation demonstrating authorization shall be made available for District inspection upon request.

Items b, c and d (riparian habitat, protected wetlands, and fish or wildlife):

Conclusion: Less Than Significant with Mitigation Incorporated

Discussion: The project will be located on property currently occupied by CUSA, which historically has been allowed for the exploration and production of oil. The project site is within the existing boundaries of the Kern River Oil Field as designated by the DOGGR consistent with current and surrounding land uses. The proposed 400 wells and the 88 ancillary wells will be located throughout the Kern River Oil Field. Specific locations of the wells within these sections are undetermined at this time, except for the several wells that are proposed to be drilled in the Kern River Designated Floodway.



The Kern River Oil field is unique in that it includes areas within the designated Kern River Designated Floodway Boundary. This proposed project includes at least two identified oil production wells and five ancillary wells (i.e. steam injection wells) that would be drilled in the floodway. These two oil production wells and their ancillary wells are identified as the KCL-39 Expansion Project and KCL-10 Expansion Project. The KCL-39 Expansion Project includes one production well and two steam injection wells. The KCL-10 Expansion Project includes one oil production well and three steam injection wells.

Several actions have been taken for these wells. An application for a Central Valley Flood Protection Board Encroachment Permit was submitted. In addition, CUSA consulted for the US Fish and Wildlife Service (Service) Valley Elderberry Longhorn Beetle (VELB) and Consultation - A Determination of No Take of the VELB was issued by the Service for both projects. The Biological Resources Evaluation for the KCL-10 Expansion project indicated that no direct impacts to the Valley Elderberry Longhorn Beetle would occur. No sensitive habitats occur in the proposed areas of impact and construction activities for the 3 wells would occur outside of the riparian corridor. The wells would also be located outside of any jurisdictional Waters of the U.S., and no wetlands were identified within the proposed project area. No special-status plants were observed/identified during the field survey. Three special-status wildlife species including the VELB, the San Joaquin kit fox and the western pond turtle are known to occur or have the potential to occur in the project area. As indicated above, protocol surveys for VELB were conducted and a no take determination issued by the Service.

With respect to kit fox, none were observed within the project area and no sign (tracks, scat, dens, etc.) were identified, and it was determined that the proposed project would be unlikely to result in adverse impacts to the species. Regarding the western pond turtle, although it is unlikely that the species will occur within the project area, individuals have the potential to be subject to harassment as a result of increased levels of human disturbance and vehicle use. Therefore, project mitigation measures were provided to reduce potential impacts to a level of less than significant.

As these wells are located in the same general area, the findings discussed for the KCL-10 Expansion project also applies to the KCL-39 Expansion project. The additional findings and recommendations made for the KCL-39 Expansion project included that it was determined that the American badger could potentially utilize the project site due to the presence of suitable habitat. As such, project mitigation measures were recommended to ensure that potential impacts would be reduced to a less than significant level.

Also, project design features were provided to avoid impacts to nesting native birds during construction activities. Based on the review conducted by the Service for this project, it was determined that compensation would be needed for impacts to kit fox



habitat. The Service recommended that permanent and temporary habitat disturbance be compensated through credit purchased from the Kern Water Bank Authority (KWBA). Consequently, a formal request to use the KWBA for project compensation was submitted to the Service and the California Department of Fish and Game. The request was submitted on November 12, 2010 and is currently being reviewed by the resource agencies.

Mitigations: If additional wells are proposed in the floodway in the future, their potential environmental impacts will also be mitigated as described.

- ❖ **BIO-4 Mitigation Measure:** (for Western Pond Turtle and American Badger)
A qualified biological monitor will be present during project implementation. The biological monitor shall be notified immediately should the western pond turtle enter the project area and work shall be halted until there is no longer a potential to adversely impact the species. All vehicles and equipment entering the project area will be in good working condition and free from leaks. In the event that a vehicle or equipment item is found to be leaking fluid, operation of the vehicle or equipment item shall be terminated and it shall be repaired or replaced. If possible, repairs should be conducted in a contained area. All contaminated soil will be collected and properly disposed of, off the project site.

To reduce the potential for direct and indirect impacts to American badger to a less-than-significant level, a qualified biologist will be retained prior to ground disturbing activities to conduct a pre-construction survey of the project area. The pre-construction survey would be conducted within the proposed project boundary and a buffer of 200 feet outside of the project footprint. If the preactivity survey indicates the presence of badger dens, they shall be classified as inactive, potentially active, or definitely active.

(a) Inactive dens will be excavated by hand and backfilled to prevent reuse by badgers.

(b) Potentially and definitely active dens will be monitored for three consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) at the entrance. If no tracks or other sign are observed in the tracking medium at the conclusion of the three nights, the den will be excavated and backfilled by hand under the direction and supervision of a qualified biologist. If tracks are observed, the den will be progressively blocked with natural materials (dirt, sticks, and vegetation piled in front of the entrance) for the next three to five nights to discourage the badger from continued use. When a qualified biologist has determined that the den is no longer active, the den will be excavated and backfilled by hand to ensure that no badgers are trapped in the den.



Results of the survey shall be made available for District inspection upon request.

- ❖ **BIO-5 Mitigation Measure:** To purchase sufficient credit from the Kern Water Bank Authority (KWBA) to mitigate for permanent and temporary habitat impacts. Documentation demonstrating the purchase shall be made available for District inspection upon request.

Items e and f (local policies or ordinances protecting biological resources, adopted conservation or habitat plan):

Conclusion: Less Than Significant with Mitigation Incorporated

Discussion: The project will be located on property currently occupied by CUSA, which historically has been allowed for the exploration and production of oil. The project site is within the existing boundaries of the Kern River Oil Filed as designated by the DOGGR consistent with current and surrounding land uses.

The project site is not located within the boundaries of any Habitat Conservation Plans, Multiple Species Habitat Conservation Plans or National Community Conservation Plans. The site is not located within any United States Fish and Wildlife Service designated critical habitat. Through compliance with CUSA environmental policies and practices, no take of endangered species are expected to occur during Project implementation due to the practice of avoidance measures. 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 local policies or ordinances, or any provision of adopted federal, state, regional, or local conservation plans protecting biological resources.

Mitigation: Please refer to the mitigations above.

References:

California Department of Conservation, Division of Oil, Gas and Geothermal Resources. *DOGGR Online Mapping System (DOMS)*. Website:
<http://maps.conservation.ca.gov/doms/index.html>

Chevron U.S.A., Inc. Larry Landis, Engineer/Specialist, Health, Environment and Safety. Electronic and Telephone Communication.

County of Kern. *First Draft Valley Floor Habitat Conservation Plan*. Website:
http://www.co.kern.ca.us/planning/pdfs/vfhcp_dec06.pdf



County of Kern. Map of Habitat Conservation Plan for Metropolitan Bakersfield.
 Website: http://www.kerncog.org/maps/MEAR_atlas/18HabitatConservation.pdf

Department of Fish and Game. Natural Community Conservation Planning (NCCP)
 Summary Table. Website: <http://www.dfg.ca.gov/habcon/nccp/>

United States Fish and Wildlife Service. *Conservation Plans and Agreements Database*.
 Website: http://ecos.fws.gov/conserv_plans/public.jsp

United States Fish and Wildlife Service. *Critical Habitat Mapper*. Website:
<http://crithab.fws.gov/flex/crithabMapper.jsp>

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		

Items a-d

Conclusion: Less Than Significant with Mitigation Incorporated

Discussion: The project will be located on property currently occupied by CUSA, which historically has been allowed for the exploration and production of oil. The project site is within the existing boundaries of the Kern River Oil Field as designated by the DOGGR consistent with current and surrounding land uses. There are already existing wells distributed throughout the Kern River Oil Field. Although it is unlikely that there will be any archaeological or historical resources on the project site, there is always a potential that cultural resources or human remains may be yet unearthed during construction.

CUSA has an in-house excavation processes to ensure that excavations do not impact hidden, unrecorded archaeological artifacts or paleontological “fossils”. Prior to developing specific locations (such as well sites or equipment facilities), locations are



reviewed to determine if there are abandoned structures, grave sites, or fossil beds and if there are any potentially impacted archaeological resources. The only known paleontological sites in the Southern San Joaquin Valley are the McKittrick tar pits and Shark's Tooth Hill. Neither of these sites is located on within the boundaries of the Kern River Oil Field.

In the event surface surveys, digging, or scraping indicate that artifacts or fossils, that archaeological resources may be present, work is stopped until the significance and extent of the find can be determined and avoided or the artifacts or fossils can be recovered by local professionals for study. Chevron USA, Inc. maintains this process throughout Chevron's San Joaquin Valley Business Unit.

Mitigations:

Mitigation measures have been incorporated into the Project to minimize impacts on any historical resources, any archaeological resources, any paleontological resources or geological resources, and human remains; therefore, the District concludes that there is no substantial evidence of record to support a conclusion that the Project would have a significant impact on those resources.

- ❖ **CUL-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. Documentation demonstrating the complete evaluation by the archaeologist shall be made available for District inspection upon request.

- ❖ **CUL-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. Documentation demonstrating the complete evaluation by the paleontologist shall be made available for District inspection upon request.



- ❖ **CUL-3 Mitigation Measure:** In the event that human remains are discovered during construction of the Project, all work within 100 feet shall be ceased and the discovery will immediately be reported to the County Coroner. If the remains are determined to be Native American in origin, the County Coroner shall notify the Native American Heritage Commission (NAHC) pursuant to Public Resources Code §5097.98. CUSA shall, in consultation with the identified descendants of the remains and/or NAHC, identify the appropriate measures for the treatment or disposition of the remains. Documentation demonstrating consultation and measures identified for the treatment or disposition of the remains shall be made available for District inspection upon request.

References:

California Department of Parks and Recreation. Office of Historic Preservation. Website: http://ohp.parks.ca.gov/listed_resources/?view=county&criteria=15

California Natural Resources Agency. *CERES: State Historical Landmarks for Kern County*. Website: http://ceres.ca.gov/geo_area/counties/Kern/landmarks.html

Chevron U.S.A., Inc. Larry Landis, Engineer/Specialist, Health, Environment and Safety. Electronic and Telephone Communication.

County of Kern. *Kern County Online GIS Mapping*. Website: <http://www.co.kern.ca.us/gis/>

National Register of Historic Places Website: <http://www.nationalregisterofhistoricplaces.com/ca/Kern/state.html>

United States. National Park Service. *National Register of Historic Places Database*. Website: <http://nrhp.focus.nps.gov/natreghome.do?searchtype=natreghome>



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

Item a (Exposure of people or structures to seismic and geological activities)

Conclusion: Less Than Significant with Mitigation Incorporated

Discussion: The project will be located within the CUSA Kern River Oil Field boundaries, where the site currently allows for the exploration and production of oil. The Kern River Oil Field and surrounding cities are sided on the east and south approximately within a 50-mile radius by two main active or potentially faults. The White Wolf Fault traverses the southeastern end of the San Joaquin Valley, from Wheeler Ridge to northeast of Caliente. The Breckenridge-Kern Canyon fault is located in the



southern Sierra Nevada, approximately 25 miles east of downtown Bakersfield. The Kern County's GIS database indicates the existence of a fault trace traversing through several sections of the potential project site – Sections 12, 13, 24, 25, and 36 of T28S, R27E within the Oildale Quadrangle Zone. For the remaining potential project sites, the proposed Project would be located in an area with stable soils with little potential for strong seismic activity and ground failure.

Development standards within the Kern County General Plan require projects to comply with appropriate seismic design criteria in the California Building Code, adequate drainage facility design, and preconstruction soils and grading studies. Significant lifeline installations, such as highways, utilities, and petroleum or chemical pipelines which cross an active fault, is to include design to accommodate potential fault movement without prolonged disruption of essential service or creating threat to health and safety.

There would be no construction of building for human occupancy as the project involves the construction of new wells. Compliance with California seismic design requirements would ensure that the project site would not expose persons or property to strong seismic ground shaking hazards, to liquefaction hazards.

The Project site is consistent with current land use and will be designed in accordance with all building code requirements including those pertaining to excavations, grading, and foundations. Adherence to and incorporation of the Metropolitan Bakersfield General Plan Safety Element, compliance with the City and County Department Codes and ordinances, and compliance with the California Building Code would reduce impacts of fault rupture and earthquake impacts. Design process of the wells would reflect appropriate recommendations in the project's grading and design plans in order to mitigate potential liquefaction hazards. Adherence to California Buildings Standards Code (CBSC) requirements and compliance with California seismic design requirements would ensure that the Project would not expose persons or property to substantial risk of loss, injury or death resulting from seismic activities and landslides.

Mitigation:

- ❖ **GEO-1 Mitigation Measure:** Engineering design for the wells shall be based on the probability that the proposed project will be subjected to strong ground motion. The wells and related pieces of equipment shall include standards that address seismic design parameters. Seismic ground shaking shall be incorporated into design and construction in accordance with the California Building Code requirements and site specific design. Documentation demonstrating design and construction in accordance with the California Building Code requirements and site specific design shall be made available for District inspection upon request.



Items b, c, and d (Soil Erosion, Loss of Topsoil, Unstable and Expansive Soil)

Conclusion: Less Than Significant

Discussion: The Project site is consistent with current land use and is designed in accordance with all building code requirements. Due to the petroleum and groundwater withdrawal activities throughout Kern County, the potential for subsidence to occur exists. However, the amount of petroleum withdrawal in Kern County is too small an amount to result in serious subsidence. The DOGGR monitors subsidence in oil and gas fields and regulates oil and gas withdrawal and repressurizing of the field. According to the Metropolitan Bakersfield General Plan, gradual subsidence is located generally south of the Bakersfield city limit.

Due to the present nature of the project site, the potential for rock falls or landslides to impact the site in the event of an earthquake is very minimal. Thus, no impacts in potential result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse, substantial soil erosion or loss of topsoil would occur. Impacts to those regards are considered to be less than significant.

Mitigation: None

Item e (soil capacity for wastewater)

Conclusion: No impact

Discussion: The project involves the installation of 400 additional thermally enhanced oil wells to the existing ones within the existing Kern River Oil Field. The general process is steam produced from steam generators is injected into the heavy crude oil bearing strata via injection wells to enhance the oil extraction. Heat from the steam makes the heavy crude oil less viscous; therefore, easier to pump from the well. Septic tanks or alternative wastewater disposal systems will not be required for this project. Gasses and water are also produced as a result of the steaming process. These gasses are comingled with the fluids and sent downstream along with well production and separated in separator vessels or front-line processing tanks. Thus, no impacts in this regard would occur.

Mitigation: None



References:

California Department of Conservation. 2010 Fault Activity Map of California. California Geological Survey, Geologic Data Map No. 6.

<http://www.quake.ca.gov/gmaps/FAM/faultactivitymap.html>

California Department of Conservation. Alquist- Priolo Earthquake Fault Zone Maps.

Website: http://www.quake.ca.gov/gmaps/ap/ap_maps.htm

California Department of Conservation, California Geological Survey. *Seismic Shaking Hazards in California*. Website:

<http://redirect.conservation.ca.gov/cgs/rghm/pshamap/pshamain.html>

Chevron U.S.A., Inc. Larry Landis, Engineer/Specialist, Health, Environment and Safety. Electronic and Telephone Communication.

County of Kern. *2009 General Plan*. Website:

<http://www.co.kern.ca.us/planning/pdfs/kcgp/KCGP.pdf>

Natural Resources Conservation Service (NRCS) *Web Soil Survey*. Website:

<http://websoilsurvey.nrcs.usda.gov/app/>

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	

Items a and b (Greenhouse Gas Emissions)

Conclusion: Less Than Significant

Discussion: 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.

Project specific impacts on global climate change were evaluated consistent with the adopted District policy – *Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency*. The District's engineering evaluation demonstrates that the project includes Best Performance Standards (BPS) for each class and category of greenhouse gas emissions unit. The District therefore concludes that the project would have a less than cumulatively significant impact on global climate change.

The County of Kern has not adopted a greenhouse gas Climate Change Action Plan, therefore this project will not conflict with any adopted plans, policies or local regulations. As shown below in the 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, impacts from GHG emissions are considered to be less than significant.

Construction and Operational Related GHG Impacts

Construction related greenhouse gas emissions (GHG), in the form of carbon dioxide (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 four hundred (400) new thermally enhanced oil recovery wells with 88 associated ancillary wells that will result in 1740.3 metric tons of CO₂.

For this project, operational greenhouse gas emission impacts will result from construction equipment used for routine well maintenance and from stationary source emissions. Existing CUSA staff within the Kern River Oil Field will man and maintain the project as needed. It is expected that additional maintenance would be needed for approximately one year after installation. Therefore, no significant increases in mobile source greenhouse gas emissions are expected. Maintenance related GHG emissions from equipment and vehicles were quantified and shown to be 75.1 metric tons of CO₂ annually.

Given the uncertainty in predicting the environmental half-life of atmospheric CO₂, the District determined it is appropriate to amortize the construction and maintenance related GHG emissions over the life of the project. CUSA provided detailed information that demonstrates a 53-year project life of an average thermally enhanced oil recovery well. As such, the District amortized construction related GHG emissions over a 53-year project life as presented below.

$$GHG\ Emissions = \left(\frac{Construction\ Emissions\ \frac{metric\ tons}{year}}{Project\ Life\ years} \right) + Operational\ \frac{metric\ tons}{year}$$

$$GHG\ Emissions = \left(\frac{1740.3\ \frac{metric\ tons}{year}}{53\ Years} \right) + 75.1\ \frac{metric\ tons}{year}$$

$$GHG\ Emissions = 107.9\ CO_{2e}\ \frac{metric\ tons}{year}$$

The District performed an Engineering Evaluation evaluating the potential increase in greenhouse gas emissions from the four hundred (400) new production wells. The emissions increase is based on the screening ranges emissions for components associated with the 400 new production wells and the allowable leaks in Rule 4401(Steam-Enhanced Crude Oil Production Wells). The annual CO_{2e} for the emissions increase is described below:

Pre-Project Potential to Emit

$$\frac{19,460\ lb \cdot VOC}{year} \left(\frac{0.375\ lb \cdot CH_4}{lb \cdot VOC} \right) \frac{23\ lb \cdot CO_{2e}\ (short\ ton)}{lb \cdot CH_4} \left(\frac{short\ ton}{2,000\ lb} \right) \frac{0.9072\ metric\ tons}{short\ ton} = 76.1\ \frac{metric\ tons \cdot CO_{2e}}{year}$$



Post-Project Potential to Emit

$$\frac{53,523 \text{ lb} \cdot \text{VOC}}{\text{year}} \left(\frac{0.375 \text{ lb} \cdot \text{CH}_4}{\text{lb} \cdot \text{VOC}} \right) \frac{23 \text{ lb} \cdot \text{CO}_2\text{e}}{\text{lb} \cdot \text{CH}_4} \left(\frac{\text{short ton}}{2,000 \text{ lb}} \right) \frac{0.9072 \text{ metric tons}}{\text{short ton}} = 209.4 \frac{\text{metric tons} \cdot \text{CO}_2\text{e}}{\text{year}}$$

The increase in GHG emissions is 209.4 – 76.1 = 133.3 metric tons of CO₂e/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 and operational related GHG emissions for the project will have a less than cumulatively significant impact. The District therefore concludes that the project would have a less than cumulatively significant impact on global climate change.

Greenhouse Gas Plan, Policy, or Regulation

The County of Kern has not adopted a greenhouse gas Climate Change Action Plan, therefore this project will not conflict with any adopted plans, policies or local regulations. As discussed above the project specific greenhouse gas emissions are less than 230 metric tons-CO₂e/year and the project will have a less than cumulatively significant impact. Therefore, the Project will not conflict with District policy for addressing GHG impacts nor with any known applicable plans, policies or regulations for addressing GHG impacts. The District concludes that there is no substantial evidence of record to support a conclusion that Project related GHG emissions would have a significant impact on the environment and global climate change.

Mitigation: None

References:

Chevron U.S.A., Inc. Larry Landis, Engineer/Specialist, Health, Environment and Safety. Electronic and Telephone Communication.

San Joaquin Valley Unified Air Pollution Control District. September 2011. *Authority to Construct: Application Review*, Applicant No. S-1547, Project No. S-1084210 and S-1084433. Available at San Joaquin Valley Air Pollution Control District. 1990 East Gettysburg Avenue, Fresno, CA 93611.

San Joaquin Valley Unified Air Pollution Control District. *Best Performance Standards (BPS) for Stationary Sources*. Website:
http://www.valleyair.org/Programs/CCAP/bps/BPS_idx.htm

San Joaquin Valley Unified Air Pollution Control District. March 2010. *Zero Equivalency Policy for Addressing Greenhouse Gases (APR-2015)*. Website:
http://www.valleyair.org/policies_per/policies/apr2015.pdf



San Joaquin Valley Unified Air Pollution Control District. December 2009. *Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency* (APR 2005). Website:
http://www.valleyair.org/policies_per/policies/apr2005.pdf



VIII. HAZARDS & HAZARDOUS MATERIALS Would the Project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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



Items a through f (public and environmental hazards)

Conclusion: Less Than Significant

Discussion: The project will be located within the CUSA Kern River Oil Field boundaries, where the site currently allows for the exploration and production of oil. The project would emit only minor amounts of toxic air contaminants resulting primarily from stationary and mobile equipment internal combustion engine use and minor amounts of fugitive emissions from oil field operations. The related equipment for the proposed new wells is not located within 1,000 feet of the outer boundary of a K-12 school. District has performed an HRA and determined that the acute and chronic indices are below 1.0 and the cancer risk factor associated with the TEOR operation is less than 1.0 in a million, thus a less than significant impact.

Potentially Hazardous materials that are stored and used on the project site include crude oil and natural gas, and substances such as corrosion inhibitors, solvents, and lubricants. Compliance with existing safety standards in the construction and long-term operation of the system is expected to minimize the 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 workplace 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. For example, manufacturers are to appropriately label containers, Material Safety Data Sheets are to be available in the workplace, and employers are to properly train workers. Impacts in this regard would be less than significant.

The project is located within two miles of the Meadows Field Airport. Human receptors nearest the Project are located at distances sufficient to reduce potential impacts from hazardous materials. The nearest public location, Cornerstone Christian Community, is located approximately 0.25 miles away.

Mitigation: None

Items g and h (Adopted emergency response/evacuation plan, wild land fires):

Conclusion: No Impact

Discussion: The project will be located within the CUSA Kern River Oil Field boundaries, where the site currently allows for the exploration and production of oil and would not conflict with an adopted emergency response plan or emergency evacuation



plan. It is not located in a Fire Hazard Severity Zones in State Responsibility Area nor is there a Very High Fire Hazard Severity Zones in the Local Responsibility Area as identified by the California Department of Forestry and Fire Protection.

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.

CUSA maintains fire prevention and control measures in place that provide information about hazardous material use and storage on the project site, that address employee training requirement and the maintenance of on-site emergency response equipment.

Employees on the project site also have the potential to be exposed to elevated H₂S sulfur levels. Low level exposures usually produce eye and mouth irritation. Employee safety practices include sulfur training, personal sulfur monitors, and warning signs. Therefore, the proposed project would not result in a significant safety impact to employees located on the project site.

Mitigation: None

References:

Chevron U.S.A., Inc. Larry Landis, Engineer/Specialist, Health, Environment and Safety. Electronic and Telephone Communication.

California Department of Forestry and Fire Protection. *Fire Hazard Severity Zones Map*. Website: http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_zones.php

California Department of Toxic Substances Control. *DTSC's Hazardous Waste and Substances Site List - Site Cleanup (Cortese List)*. Website: http://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm

California Environmental Protection Agency. *Cortese List: Section 65962.5(a)*. Website: <http://www.calepa.ca.gov/sitecleanup/corteselist/SectionA.htm>

County of Kern. Kern County Online GIS Mapping. Website: <http://www.co.kern.ca.us/gis/>



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	



Items a through f (water quality and area alteration):

Conclusion: Less than Significant with Mitigation Incorporated

Discussion: The addition of 400 oil wells to the existing approximately 8,500 oil wells is not anticipated to have a significant impact on the overall production and removal of fresh water, nor on the existing infrastructure. Associated water produced in the Kern River Oil Field is fresh water that is in demand by the Cawelo Water District. Similarly, the drilling and operation of the wells should have a negligible impact on the use of public utility water resources, the use of which is restricted to hygiene, drinking, and fire fighting.

The Kern River Oil Field is unique in that it includes areas within the designated Kern River floodway. This proposed project includes at least two identified oil production wells and five ancillary wells (i.e. steam injection wells) that would be drilled in the floodway. These two oil production wells and their ancillary wells are identified as the KCL-39 Expansion Project and KCL-10 Expansion Project. The KCL-39 Expansion Project includes one production well and two steam injection wells. The KCL-10 Expansion Project includes one oil production well and three steam injection wells.

As the proposed projects are subject to the requirements of the Kern County Zoning Ordinance, Chapter 19.50 (Floodplain Primary District) and Chapter 17.48 (Floodplain Management), consultation with the Kern County Engineering and Survey Services was initiated. In order to comply with the development standards of these two chapters, surveys were conducted by a Licensed Land Surveyor and preliminary Elevation Certificates completed to ensure that the top of casing of the wells will be elevated one foot above the base flood evaluation. After construction of the wells, a final survey would be completed to ensure compliance with the Elevation Certificate.

The Flood Protection and Navigation Section of the U.S. Army Corps of Engineers (ACOE) determined during their review that a Section 10 and/or Section 404 permit may be required. Consequently, based on discussions with Mr. Ramon Aberasturi (with ACOE), delineation of the Ordinary High Water Mark (OHWM) was performed to identify the areas of the proposed projects, if any, that may impact waters of the U.S. and therefore lie within the jurisdiction of the ACOE. The delineations showed that the proposed projects would occur outside of the OHWM and waters of the U.S. Based on the result of the OHWM delineations, the ACOE determined that the proposed projects would not result in the discharge of dredged or fill material within waters of the U.S. Hence, a Section 404 permit from the ACOE is not required.

In conclusion, the project site will not be altered enough to have a negative effect on surface runoff or increase flooding potential. Therefore, no impacts in these regards would occur.



Mitigation:

- ❖ **HYD-1 Mitigation Measure:** Top of casing of wells to be elevated one foot above the base flood evaluation. A final survey to be completed after construction of the wells to ensure compliance with the Elevation Certificate. The final survey shall be made available for District inspection upon request.

Items g through j (flood hazard and other risks):

Conclusion: Less Than Significant

Discussion: The project site is in an area that has historically been used for oil production. Although the Isabella Dam, which is located approximately 40 miles northeast of Bakersfield near a major fault line, could break from an earthquake impact. According to the Metropolitan Bakersfield General Plan, the chance of dam failure is approximately one day in 10,000 years with the lake at capacity.

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 does not include construction of any housing units. The Project is not located within the 100-year flood zone as mapped on Flood Insurance Rate Maps. Therefore, the District concludes that there is no substantial evidence of record to support a conclusion that the Project would expose persons or structures to negative impacts resulting from flooding, seiche, tsunamis, or mudflow; therefore, impacts are less than significant.

Mitigation: None

References:

Chevron U.S.A., Inc. Larry Landis, Engineer/Specialist, Health, Environment and Safety. Electronic and Telephone Communication.

California Department of Conservation, California Geological Survey. *Tsunami Information*. Website:
http://www.conservation.ca.gov/cgs/geologic_hazards/Tsunami/Pages/Index.aspx

County of Kern. Kern County Online GIS Mapping. Website:
<http://www.co.kern.ca.us/gis/>



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

Items a through c (Community, Land Use, and Conservation Plan):

Conclusion: No Impact

Discussion: The project will be located on property currently occupied by CUSA, which historically has been allowed for the exploration and production of oil. The project site is within the existing boundaries of the Kern River Oil Field as designated by the DOGGR as shown in Figure 3.

The proposed project would not divide an established community, nor will it result in the removal or development of any housing, and will not involve an extension of utilities. Natural gas used to fuel the existing steam generators and cogeneration facilities would be supplied by existing utility connections and water for the steam generators would be supplied by using ground water that is presently produced by existing oil field operations. Therefore, the project would not have the potential to result in significant growth inducing or housing-related impacts. Expansion of oil field operations onto sites previously used for oil production activities would not result in the loss of a substantial amount of open space.

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. The project does not conflict with any applicable habitat or natural community conservation plans. Thus, no impacts in these regards would occur.

Mitigation: None



References:

County of Kern. *Kern County Online GIS Mapping*. Website:
<http://www.co.kern.ca.us/gis/>

County of Kern. Map of Habitat Conservation Plan for Metro Bakersfield. Website:
http://www.kerncog.org/maps/MEAR_atlas/18HabitatConservation.pdf

Fish & Wildlife Services- Critical Habitat for Threatened & Endangered Species Database. Website: <http://crithab.fws.gov/>

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

Items a and b (Mineral Resources):

Conclusion: No Impact

Discussion: The project will be located on property currently occupied by CUSA, which historically has been allowed for the exploration and production of oil. The project site is within the existing boundaries of the Kern River Oil Field as designated by the DOGGR as shown in Figure 3. This project is consistent with current land use in an area that has historically been used for oil production.

Furthermore, the proposed project will not result in the loss of a known mineral resource that is of value to the region or state or locally important delineated on a local general plan, specific plan or other land use plan. Thus, no impact in this regard would occur.

Mitigation: None

References:

County of Kern. *Kern County Online GIS Mapping*. Website:
<http://www.co.kern.ca.us/gis/>



California Department of Conservation, California Geological Survey. *Mineral Resources*. Website:
http://www.conservation.ca.gov/cgs/geologic_resources/mineral_resource_mapping/Pages/Index.aspx

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?				
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

Items a and b (Noise Exposure or Generation)

Conclusion: Less Than Significant

Discussion: The project will be located on property currently occupied by CUSA, which historically has been allowed for the exploration and production of oil. The project



site is within the existing boundaries of the Kern River Oil Field as designated by the DOGGR as shown in Figure 3.

Noise levels associated with construction activities for the proposed 400 wells and the ancillary wells 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 project will not expose persons to noise levels in excess of any established standards, plans or ordinances and to excessive ground borne vibrations or noise levels nor result in any substantial permanent increase in ambient noise levels. The elevation of noise is temporary, short-term and consistent with current land use and existing operations in an area that has historically been used for oil production. Thus, impacts in this regard would be considered to be less than significant.

Items c through f (Noise Generation):

Conclusion: No Impact

Discussion: The project will be located on property currently occupied by CUSA, which historically has been allowed for the exploration and production of oil. The project site is within the existing boundaries of the Kern River Oil Field as designated by the DOGGR as shown in Figure 3.

Two, at most, out of the dozen of potential well locations are about two miles away from the Meadows Field Airport. The nearest residential center is located approximately 0.5 mile from the project site. These areas are 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. During construction, noise levels may elevate due to equipment and rig activities. Construction operations required to install the proposed oil wells such as drilling and the use of heavy equipment to grade oil well pads could result in short-term noise levels at the project sites. However the elevation of noise is temporary, short-term and consistent with current land use and existing operations in an area that has historically been used for oil production. Thus, there would be no impact in this regard.

Mitigation: None

References:

Chevron U.S.A., Inc. Larry Landis, Engineer/Specialist, Health, Environment and Safety. Electronic and Telephone Communication.



County of Kern. Code of Ordinances, Title 8 – Health and Safety. Website:
http://library.municode.com/HTML/16251/level2/SUHITA_TIT8HESA.html

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

Items a through c (Population and housing):

Conclusion: No Impact

Discussion: The project will be located on property currently occupied by CUSA, which historically has been allowed for the exploration and production of oil. The project site is within the existing boundaries of the Kern River Oil Field as designated by the DOGGR as shown in Figure 3. This project is consistent with current land use in an area that has historically been used for oil production.

The project site does not include any on-site housing and will not displace any people. 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.

Mitigation: None

References:

Chevron U.S.A., Inc. Larry Landis, Engineer/Specialist, Health, Environment and Safety. Electronic and Telephone Communication.



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

Item a (Public Services):

Conclusion: No Impact

Discussion: 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 Kern River Oil Field as designated by the DOGGR and is already developed for its current operations.

The CAL FIRE has determined that Kern County has no Very High Fire Hazard Severity Zones (FHSZs) in the Local Responsibility Area and only a Moderate FHSZ in the State Responsibility Area. The Project will be designed to meet the standards of the current California Fire Code and Federal safety standards. Installation and operation of the Project in accordance with these standards will minimize the potential for fire.

The project will be maintained and manned using existing personnel and, therefore, will not increase the population in the surrounding area. A lack of substantial increase in population precludes the possibility of the Project having a negative impact on police services, local schools and parks, or any other public facility. Therefore, the project will not affect parks in any manner nor will it affect any other public facilities and police protection capabilities in the area. Therefore, the project will have no impact on school operations in the area. Therefore the District concludes that there is no substantial evidence of record to support a conclusion that the Project would have a significant impact on public facilities and services.



Mitigation: None

References:

California Department of Forestry and Fire Protection. *Fire Hazard Severity Zones Map*.
 Website: http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_zones.php

Chevron U.S.A., Inc. Larry Landis, Engineer/Specialist, Health, Environment and Safety.
 Electronic and Telephone Communication.

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

Items a and b (Recreation):

Conclusion: No Impact

Discussion: CUSA is adding 400 additional wells. These proposed new wells will be located within the existing Kern River Oil Field which has historically been used for oil production. No recreational facilities are proposed nor would they be required as a result of the proposed project. The Project is expected to be maintained and manned by existing personnel and contractors and, therefore will not increase the population in the surrounding area. Therefore, the project would not have any negative impact on neighborhood and regional parks or recreational facilities. Thus, no impacts in these regards would occur.

Mitigation: None

References:

Chevron U.S.A., Inc. Larry Landis, Engineer/Specialist, Health, Environment and Safety.
 Electronic and Telephone Communication.



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

Items a, b, c, and f (Transportation/Traffic Plan and Air Traffic Pattern):

Conclusion: No Impact

Discussion: This project is consistent with current land use. The project will be located on property currently occupied by CUSA, which historically has been allowed for the exploration and production of oil. The project site is within the existing boundaries of the Kern River Oil Field as designated by the DOGGR as shown in Figure 3.



Short-term construction traffic would be generated by the project during the development of the proposed oil wells. Traffic resulting from construction workers and equipment traveling to and from the project site would be limited in duration, would generally be similar to the type of traffic generated by existing oil field operations, and would not result in a substantial increase in traffic on project-area roadways. Therefore, the proposed project would not result in significant short-term traffic volume or roadway impacts.

The Project is expected to be maintained and manned by existing personnel and contractors. The proposed project would not result in a substantial long-term increase in traffic volumes as it would not result in a substantial increase in additional employees at the project site and oil produced by the project would most likely be shipped using existing pipelines. Therefore, under this operation scenario, the proposed project would not result in significant traffic volume or roadway impacts. In addition, the project overall would not conflict with adopted policies, plans, or programs supporting alternative transportation, and air traffic patterns.

Items d and e (hazards and emergency access):

Conclusion: No Impact.

Discussion: There will be no alterations to existing roads or intersections. The project will not affect emergency access. 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 Kern River Oil Field, which is already developed for its current operations. Thus, no impacts in this regard would occur.

Mitigation: None

References:

Chevron U.S.A., Inc. Larry Landis, Engineer/Specialist, Health, Environment and Safety. Electronic and Telephone Communication.



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

Items a, b and c: (Wastewater treatment requirements and wastewater and storm water facilities):

Conclusion: No Impact

Discussion: The project will be located on property currently occupied by CUSA, which historically has been allowed for the exploration and production of oil. The project site is within the existing boundaries of the Kern River Oil Field, and is already



developed for its current operations. The project provides for the exploration and production of oil and does not result in wastewater discharge. The Project will not require the construction or modification of wastewater facilities and will not require or result in the construction of new stormwater drainage facilities or expansion of new water or wastewater treatment facilities. The existing facilities within the Kern River Oil Field have excess capacity to handle the anticipated volumes of oil and water.

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 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. Thus, no impacts in these regards would occur.

Items d and e (water supply):

Conclusion: No Impact

Discussion: The project will use produced water from existing resources to generate steam; hence it will have sufficient water supply. Actually, the Kern River Oil produced fresh water that is in demand by the Cawelo Water District. The project consists of installing 400 thermally enhanced wells for oil production which would be transferred through pipelines. Thus, the project will not impact any wastewater treatment providers. Thus, no impacts in this regard would occur.

Items f and g (solid waste):

Conclusion: No impact.

Discussion: 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 Kern River Oil Field, and is already developed for its current operations. The project consists of installing 400 thermally enhanced oil production wells and will not impact landfill capacity.

Mitigation: None

References:

Chevron U.S.A., Inc. Larry Landis, Engineer/Specialist, Health, Environment and Safety. Electronic and Telephone Communication.



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	

Item a:

Conclusion: Less Than Significant Impact with Mitigation Incorporated

Discussion: With the incorporation of required permits and mitigation measures as outlined in the initial study, the project will have a less than significant impact on air quality, biological resources, and cultural resources.

Item b:

Conclusion: Less Than Significant

Discussion: CEQA Guidelines state 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 (CCR §15065). 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 a part of any larger, planned developments. Therefore, the 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.). There are no significant cumulative air, noise, and traffic impacts caused by the project.

Item c:

Conclusion: Less Than Significant

Discussion: There are no environmental effects that have the potential to cause substantial adverse effects on human beings. 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. Project design elements and mitigation measures have been incorporated into the Project to reduce all potentially significant impacts to less than significant.

Mitigation: See Mitigation Measures: BIO-1 through HYD-1.



APPENDIX A

Mitigation Monitoring and Reporting Program



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 NOx emissions will be mitigated by surrendering Emission Reduction Credits (ERCs) for 0.96 tons of NOx emissions. ERCs must be surrendered to the District prior to any ground disturbance activities. 	San Joaquin Valley Air Pollution Control District	Less Than Significant
Operational emissions exceed the District's thresholds of significance for VOC emissions.	AIR-2	Potentially Significant	<ul style="list-style-type: none"> Operational related VOC emissions will be mitigated by surrendering Emission Reduction Credits (ERCs) for 17.03 tons of VOC emissions. 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"> 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 and riparian habitat. The survey shall be conducted in accordance with the standard protocol of California Department of Fish & Game (CDFG) and/or California Department of Fish & Game (CDFG). CUSA will notify CDFG and the US Fish and Wildlife Service (USFWS) in the event a State or Federally listed species is encountered. Results of the survey shall be made available for District inspection upon request. 	San Joaquin Valley Air Pollution Control District/USFWS /CDFG	Less Than Significant
Project may potentially affect sensitive species.	BIO-2	Potentially Significant	<ul style="list-style-type: none"> 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 the movement of any native resident or migratory fish or wildlife species, corridors, or nursery sites. 	San Joaquin Valley Air Pollution Control District/USFWS /CDFG	Less Than Significant



Impact	Measure Number	Significance Prior to Mitigation	Mitigation Measure	Enforcement Agency	Significance After Mitigation
Project may potentially affect sensitive species.	BIO-3	Potentially Significant	<p>CUSA will notify CDFG and the US Fish and Wildlife Service in the event a State or Federally listed species is encountered. Results of the survey shall be made available for District inspection upon request.</p> <ul style="list-style-type: none"> CUSA to notify USFWS and CDFG immediately in the event that the Project avoidance measures fail and there is a take of a threatened or endangered species. No activities shall occur until Incidental Take authorization has been obtained from USFWS and CDFG. Documentation demonstrating authorization shall be made available for District inspection upon request. 	San Joaquin Valley Air Pollution Control District/USFWS /CDFG	Less Than Significant
Project may potentially affect riparian habitat,	BIO-4	Potentially Significant	<ul style="list-style-type: none"> (for Western Pond Turtle and American Badger) A qualified biological monitor will be present during project implementation. The biological monitor shall be notified immediately should the western pond turtle enter the project area and work shall be halted until there is no longer a potential to adversely impact the species. All vehicles and equipment entering the project area will be in good working condition and free from leaks. In the event that a vehicle or equipment item is found to be leaking fluid, operation of the vehicle or equipment item shall be terminated and it shall be repaired or replaced. If possible, repairs should be conducted in a contained area. All contaminated soil will be collected and properly disposed off the project site. To reduce the potential for direct and indirect impacts to American badger to a less-than-significant level, a qualified biologist will be retained prior to ground disturbing activities to conduct a pre-construction survey of the project area. The pre-construction survey would be conducted within the proposed project boundary and a buffer of 200 feet outside of the project 	San Joaquin Valley Air Pollution Control District	Less Than Significant



Impact	Measure Number	Significance Prior to Mitigation	Mitigation Measure	Enforcement Agency	Significance After Mitigation
Project may potentially affect riparian habitat.	BIO-5	Potentially Significant	<p>footprint. If the preactivity survey indicates the presence of badger dens, they shall be classified as inactive, potentially active, or definitely active.</p> <p>(a) Inactive dens will be excavated by hand and backfilled to prevent reuse by badgers.</p> <p>(b) Potentially and definitely active dens will be monitored for three consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) at the entrance. If no tracks or other sign are observed in the tracking medium at the conclusion of the three nights, the den will be excavated and backfilled by hand under the direction and supervision of a qualified biologist. If tracks are observed, the den will be progressively blocked with natural materials (dirt, sticks, and vegetation piled in front of the entrance) for the next three to five nights to discourage the badger from continued use. When a qualified biologist has determined that the den is no longer active, the den will be excavated and backfilled by hand to ensure that no badgers are trapped in the den.</p> <p>Results of the survey shall be made available for District inspection upon request.</p>	San Joaquin Valley Air Pollution Control District	Less Than Significant
			<ul style="list-style-type: none"> To purchase sufficient credit from the Kern Water Bank Authority (KWBA) to mitigate for permanent and temporary habitat impacts. Documentation demonstrating the purchase shall be made available for District inspection upon request. 		



Impact	Measure Number	Significance Prior to Mitigation	Mitigation Measure	Enforcement Agency	Significance After Mitigation
Project may potentially affect archaeological resources.	CUL-1	Potentially Significant	<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. Documentation demonstrating the complete evaluation by the archaeologist shall be made available for District inspection upon request. 	San Joaquin Valley Air Pollution Control District	Less Than Significant
Project may potentially affect paleontological resources.	CUL-2	Potentially Significant	<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. Documentation demonstrating the complete evaluation by the paleontologist shall be made available for District inspection upon request. 	San Joaquin Valley Air Pollution Control District	Less Than Significant



Impact	Measure Number	Significance Prior to Mitigation	Mitigation Measure	Enforcement Agency	Significance After Mitigation
<p>Project may potentially affect humans remains.</p>	<p>CUL-3</p>	<p>Potentially Significant</p>	<ul style="list-style-type: none"> In the event that human remains are discovered during construction of the Project, all work within 100 feet shall be ceased and the discovery will immediately be reported to the County Coroner. If the remains are determined to be Native American in origin, the County Coroner shall notify the Native American Heritage Commission (NAHC) pursuant to Public Resources Code §5097.98. CUSA shall, in consultation with the identified descendants of the remains and/or NAHC, identify the appropriate measures for the treatment or disposition of the remains. Documentation demonstrating consultation and measures identified for the treatment or disposition of the remains shall be made available for District inspection upon request. 	<p>San Joaquin Valley Air Pollution Control District/Kern County/NAHC</p>	<p>Less Than Significant</p>
<p>Project may potentially expose people or structures to rupture of a known earthquake fault, seismic ground shaking, ground failure, liquefaction, and landslides.</p>	<p>GEO-1</p>	<p>Potentially Significant</p>	<ul style="list-style-type: none"> Engineering design for the wells shall be based on the probability that the proposed project will be subjected to strong ground motion. The wells and related pieces of equipment shall include standards that address seismic design parameters. Seismic ground shaking shall be incorporated into design and construction in accordance with the California Building Code requirements and site specific design. Documentation demonstrating design and construction in accordance with the California Building Code requirements and site specific design shall be made available for District inspection upon request. 	<p>San Joaquin Valley Air Pollution Control District</p>	<p>Less Than Significant</p>



Impact	Measure Number	Significance Prior to Mitigation	Mitigation Measure	Enforcement Agency	Significance After Mitigation
Project may potentially affect water quality standards/requirements, water supply, draining pattern, and runoff	HYD-1	Potentially Significant	<ul style="list-style-type: none">• Top of casing of wells to be elevated one foot above the base flood evaluation. A final survey to be completed after construction of the wells to ensure compliance with the Elevation Certificate. The final survey shall be made available for District inspection upon request.	San Joaquin Valley Air Pollution Control District	Less Than Significant



APPENDIX B

Project Construction and Operational Emissions

Available Upon Request at District Office:

Central Region
1990 East Gettysburg Avenue
Fresno, CA 93726
(559) 230-6000



APPENDIX C

Engineering Evaluation

Available Upon Request at District Office:

Southern Region
34946 Flyover Court
Bakersfield, CA 93308
(661) 392-5500