

# **Initial Study/Mitigated Negative Declaration**

Division of Oil, Gas, and Geothermal Resources

## **PROJECT TITLE**

Bloemer and Kirschenman Oil Well Project

## **LEAD AGENCY**

Department of Conservation  
Division of Oil, Gas, and Geothermal Resources (Division)  
801 K Street, MS 18-05  
Sacramento, CA 95814-3530  
Contact: Adele Lagomarsino  
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## **APPLICANT**

Naftex Operating Company  
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Contact: Dave Lefler  
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## **PROJECT DESCRIPTION AND LOCATION**

Naftex Operating Company (Naftex) proposes to construct six (6) well sites, and drill one (1) oil well from each pad, and drilling approximately 940 feet to 990 feet (Santa Margarita Formation). The proposed oil wells are an extension of existing development within the Edison Oil Field. Naftex anticipates completing all drilling operations in the third quarter of 2013. The proposed project is located 2.9 miles northeast of Edison in central Kern County, California (Figure 1). The proposed project is located in the northwest quarter of the southeast quarter of Section 26, Township 29 South, Range 29 East) MDBM of the U.S. Geological Survey [USGS] *Rio Bravo Ranch* (1995) and *Edison* (1992) 7.5-minute quadrangle. The longitude and latitude for each of the proposed well sites in NAD 83 is listed in Table 1. The surface location for the proposed project sites is located on lands owned by Chris and Sandy Henriksen and Edward P. and Lucille L. Granillo. If economical quantities of oil are discovered, Naftex would install the necessary production equipment on the proposed project sites as described in the Production Phase section of this Project Description. No hydraulic fracturing is proposed as part of this project.

**Table 1**  
**Coordinates of the Proposed Well Sites**

<b>Well Name</b>	<b>Latitude</b>	<b>Longitude</b>
Bloemer 1	35.374949	-118.8341000
Bloemer 2	35.376241	-118.8340937
Bloemer 3	35.3755525	-118.8337385
Bloemer 4	35.3749549	-118.8330825
Kirschenman 1	35.3742796	-118.8335941
Kirschenman 2	35.3735667	-118.8340511

**Table 2**  
**Surface Disturbance of the Proposed Well Sites**

<b>Well Name</b>	<b>Site Size</b>	<b>New Access Road</b>	<b>Total Acres of Land Disturbed</b>
Bloemer 1	120 feet by 200 feet	20 feet by 350 feet	0.71 Acres
Bloemer 2	120 feet by 200 feet	20 feet by 350 feet	0.71 Acres
Bloemer 3	120 feet by 200 feet	20 feet by 350 feet	0.71 Acres
Bloemer 4	120 feet by 200 feet	20 feet by 350 feet	0.71 Acres
Kirschenman 1	120 feet by 200 feet	20 feet by 350 feet	0.71 Acres
Kirschenman 2	120 feet by 200 feet	20 feet by 350 feet	0.71 Acres
<b>Totals</b>		0.96 Acres	4.3 Acres

The proposed well sites are located in habitat that consists of disturbed/ruderal and non-native grassland habitats that are currently used for cattle grazing. Each of the proposed project sites would encompass an area of 120 feet by 200 feet (24,000 square feet, or 0.55 acres). Comanche Drive, Breckenridge Road (County Highway 218), and existing dirt roads provide access to the proposed project. A new access road will need to be constructed to each of the proposed project sites from existing dirt roads. Each new access road will be approximately 20 feet wide and 350 feet long as shown on Figure 2 the Project Location Map. The total estimated surface disturbance resulting from the construction of the access roads and the well sites would be 186,000 square feet, or 4.3 acres (see Table 2 above).

The proposed project is needed to develop additional oil reserves in the State of California. The objective of the proposed project is to locate untapped oil sources with potential for development. The proposed project includes three (3) phases: a site preparation phase, a drilling phase and a production phase. A detailed description of each phase is presented below.

The terms “project site” and “project area” are used within this document. The term “project site” is used to define the proposed area of disturbance such as the proposed project sites and proposed access roads. The term “project area” includes the area immediately adjacent to the proposed project sites and buffer areas.

**Site Preparation Phase**

Site preparation activities for each of the proposed project sites would include clearing, grading, and compaction of soil. Once a proposed project site has been cleared, it would be graded,

watered and compacted to establish a level and solid foundation for the drilling rig. If required a commercial base material such as aggregate ¾” base rock would be used to weatherize each of the proposed well pad areas.

A reserve pit may be excavated during site preparation for storage and handling of drilling mud and cuttings during the drilling process within the boundaries of a proposed project site. Soil will be stockpiled on site and used as backfill upon completion of drilling. If constructed, the reserve pit will be 75 feet long by 25 feet wide by six (6) feet deep. The reserve pit will hold 84,150 gallons with a two-foot freeboard. Reserve pits would be constructed by mechanical compaction. Compaction of the surface, combined with the deposition of bentonite drilling mud during drilling operations, would give the pit a bentonite seal with a maximum permeability of approximately  $10^{-6}$  cm/sec (International Journal of the Physical Sciences Vol. 5(11) pp. 1647-1659, 18 Sept 2012). Should a shallow water table preclude the use of such a method, Naftex will use a closed loop system of above ground tanks for handling of all drilling mud and cuttings. The approximate depth to ground water is 320 feet to 325 feet (California Department of Water Resources Water Data Library 2012). Completing the site preparation process for each of the proposed project sites would require approximately three (3) days. Water shall be applied to access roads and each of the proposed project sites to facilitate movement of heavy equipment and to control dust.

### **Drilling Phase**

Drilling equipment will be mobilized to each site and temporary facilities, equipment and materials necessary for the drilling operation would be set up and stored on site (i.e., drilling mud supplies, water, drilling materials and casing, crew support trailers, pumps and piping, portable generators, fuels and lubricants, etc.). Typically, this process is completed in approximately one (1) day. Night lighting will be available and required only during the drilling phase. However, to the greatest extent possible night lighting will be directed inward and down to minimize off site impacts without compromising safety. All hazardous materials such as diesel fuel will be stored according to applicable federal, state and local regulations. Portable tanks and mud pits will be used for mixing and storing drilling fluids. All fluids will be disposed of in accordance with the requirements of the Central Valley Regional Water Quality Control Board (RWQCB). If a reserve pit/sump is used, the use and closure of the reserve pit/sump will be handled in accordance with Title 27, CCR, Section 20090(g), and Regional Board Waiver Resolution No. R5-2008-0182.

Surface casing would be set, cemented, and blowout prevention equipment installed at each of the wellheads and tested. The amount of surface casing used depends upon factors such as expected well pressures, the depth of fresh water, and the competence of the strata in which the well casing will be cemented.

Blowout prevention equipment is bolted to the surface casing. All successive drilling occurs through the blowout prevention equipment, which can be operated to control well pressures at any time. Blowout prevention equipment will be regulated by the Division. Division engineers will be notified for required tests and other operations (blowout prevention, surface casing integrity).

Well casing is designed to protect fresh water zones. The Division's well construction standards have the fundamental purpose to ensure zonal isolation. Zonal isolation means that oil and gas coming up a well from the productive, underground geologic zone will not escape the well and migrate into other geologic zones, including zones that might contain fresh water. Zonal isolation also means that the fluids that are put down a well for any purpose will stay in that zone and not migrate to another zone. To achieve zonal isolation, Division regulations require that a cement barrier be placed between the well and surrounding geologic strata or stratum. The cement bonds to the surrounding rock and well casing and forms a barrier against fluid migration. Cement barriers must meet certain standards for strength and integrity. If these cement barriers do not meet the standards, the Division requires the oil or gas operator to remediate the cement barrier. Metal casings, which can be several layers depending on the depth of a well, also separate the fluids going up and down a well bore from the surrounding geology. If the integrity of a well is compromised by ground movement or other mechanisms, the well operator must remediate the well to ensure zonal isolation. Well casing standards are prescribed in CCR sections 1722.2 – 1722.4.

The approximate depth to ground water is 320 feet to 325 feet. Blowout prevention equipment would be regulated by the Division. Sufficient weighted drilling fluid would be used to prevent any uncontrolled flow from a well and additional quantities of drilling fluid would be available at each of the proposed project sites. It is anticipated that approximately 3,500 barrels (147,000 gallons) of treated production water from the Naftex Racetrack Water Plant would be needed for the drilling and site construction operations of each well. Drilling would continue until target depth is reached. Equipment, personnel and supply deliveries would continue through the course of the drilling program. Naftex estimates that approximately two (2) days would be required for drilling each well. Division engineers would be present for the required tests and other operations.

Equipment, personnel and supply deliveries would continue through the course of the drilling program. Drilling activities would operate 24 hours per day. Approximately 12-15 personnel would be on site at any given time during the drilling operations. The proposed wells will be drilled consecutively.

### **Production Phase**

Once target depth is reached, each of the proposed wells would be fully evaluated, completed and either produced or plugged and abandoned. If economic quantities of oil are discovered, a given well will be completed and production equipment including a well head and API 10 hp electronic motor pumping unit will be installed on site. Flowlines will be installed aboveground adjacent to the proposed new access roads. The proposed flowlines will connect the proposed wells to existing pipeline infrastructure located west of the proposed Bloemer 1 well site. The proposed flowlines will be measure approximately 1,900 feet in length (see Figure 2). The proposed flowlines will be installed on sleepers to avoid impacts to small mammal burrows. Naftex proposes to paint all production equipment in camouflage or an earthen tone to blend in with the environment and to prevent glare. Naftex estimates that approximately three (3) days would be required for flow line installation activities.

Naftex anticipates 10 barrels of oil and 90 barrels of production water will be produced daily from each well. The oil will be transported from the wells through flow lines to Naftex’s Section 26 Tank Farm (Figures 2 and 3) and sold to a local refinery. The production water will be transported to Naftex’s Section 26 Tank Farm and will be disposed of in the Naftex Racetrack 76-27, 77-27 or 86-27 Division permitted Class II disposal wells. Each of the production sites will be inspected daily by Naftex personnel.

Once a well stops producing, it will be plugged and abandoned in accordance with Title 14 CCR, Division 2, Chapter 4, Subchapter 1, Article 3, Sections 1723 – 1723.8. Naftex estimates that the life expectancy of the proposed wells will be 15 to 20 years. In this case, a Notice of Intention to abandon the well will be submitted to the Division for review and approval. During a typical well abandonment, recoverable casing will be salvaged from the well and the hole will be plugged with cement. The wellhead (and any other equipment) will be removed, the casing cut off 6 feet below ground surface, capped with a welded plate and the cellar backfilled. This process will utilize the same equipment that will be used for the completion phase and the process will be completed in two (2) days. The land contours of each well site would be re-established to near grade conditions as present at the time of project initiation. After all equipment is removed, the site would be restored to its condition prior to construction of the well pad. Table 3 lists the estimated days it would take to complete each phase of the project at each site.

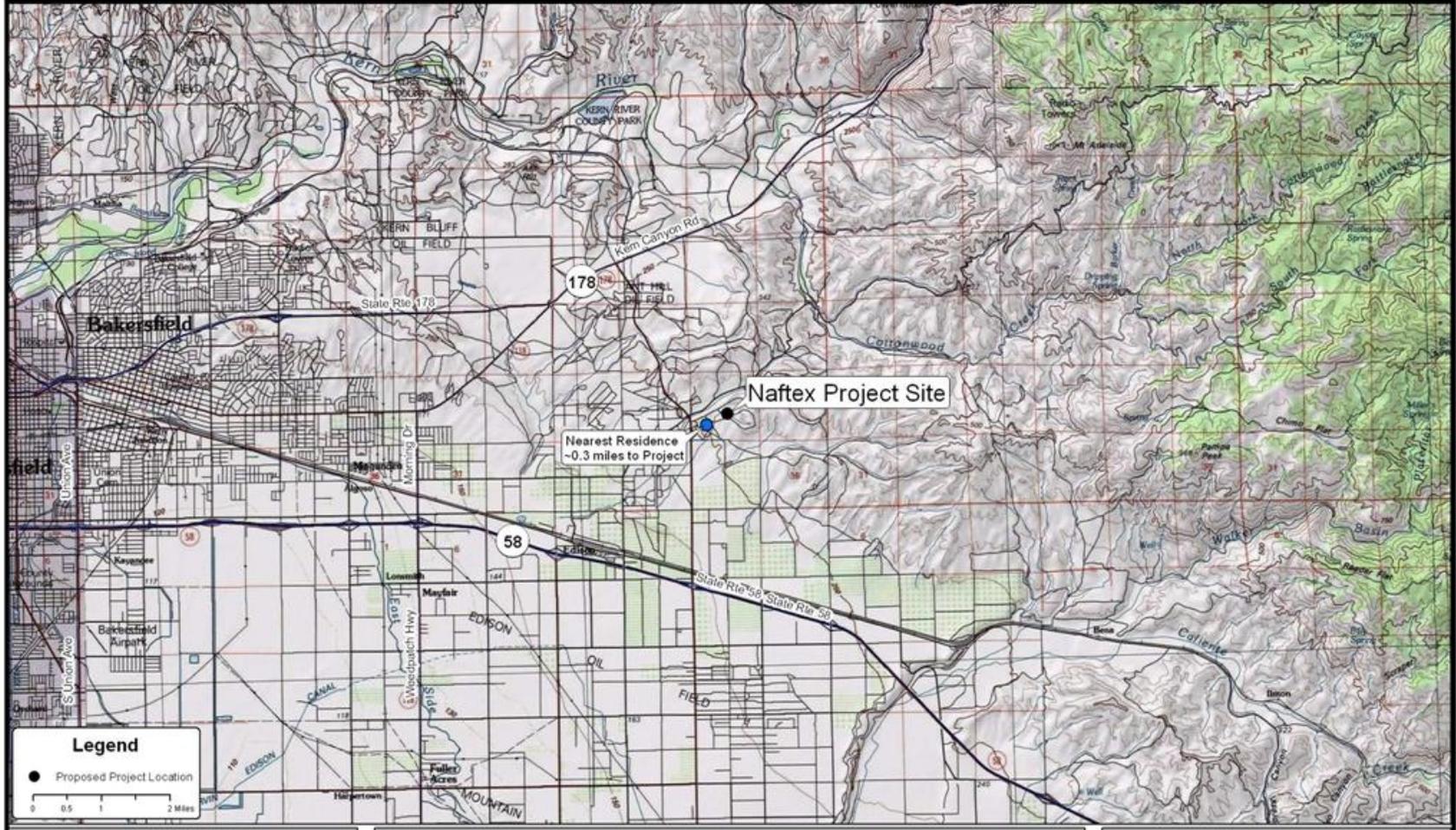
**Table 3**  
**Estimated Days to Complete Activity at Each Site**

<b>Activity</b>	<b>Days</b>
Site Preparation	3
Drilling	2
Completion	2
Installation of Production Equipment	3
Plugging and Abandonment (if necessary)	2
<b>Total days per site</b>	<b>12</b>

**MITIGATION MONITORING AND REPORTING PLAN**

The proposed project incorporates Mitigation Measures designed to avoid or reduce environmental impacts to less-than-significant levels. Mitigation Measures are fully described in the following sections and are included in the Mitigation Monitoring and Reporting Plan (Attachment A).

Photographs representative of the proposed project sites are attached.



**Legend**

- Proposed Project Location

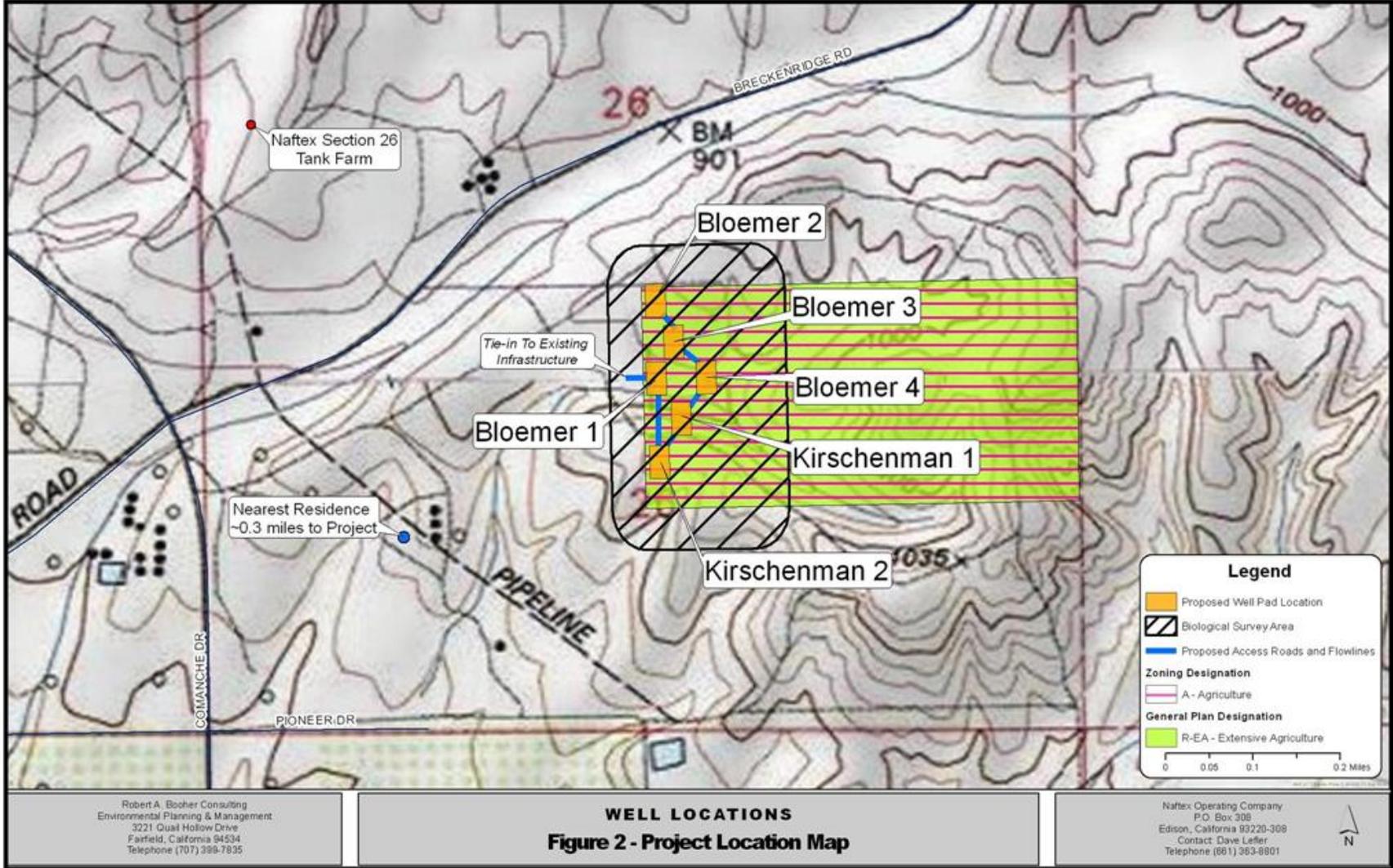
0 0.5 1 2 Miles

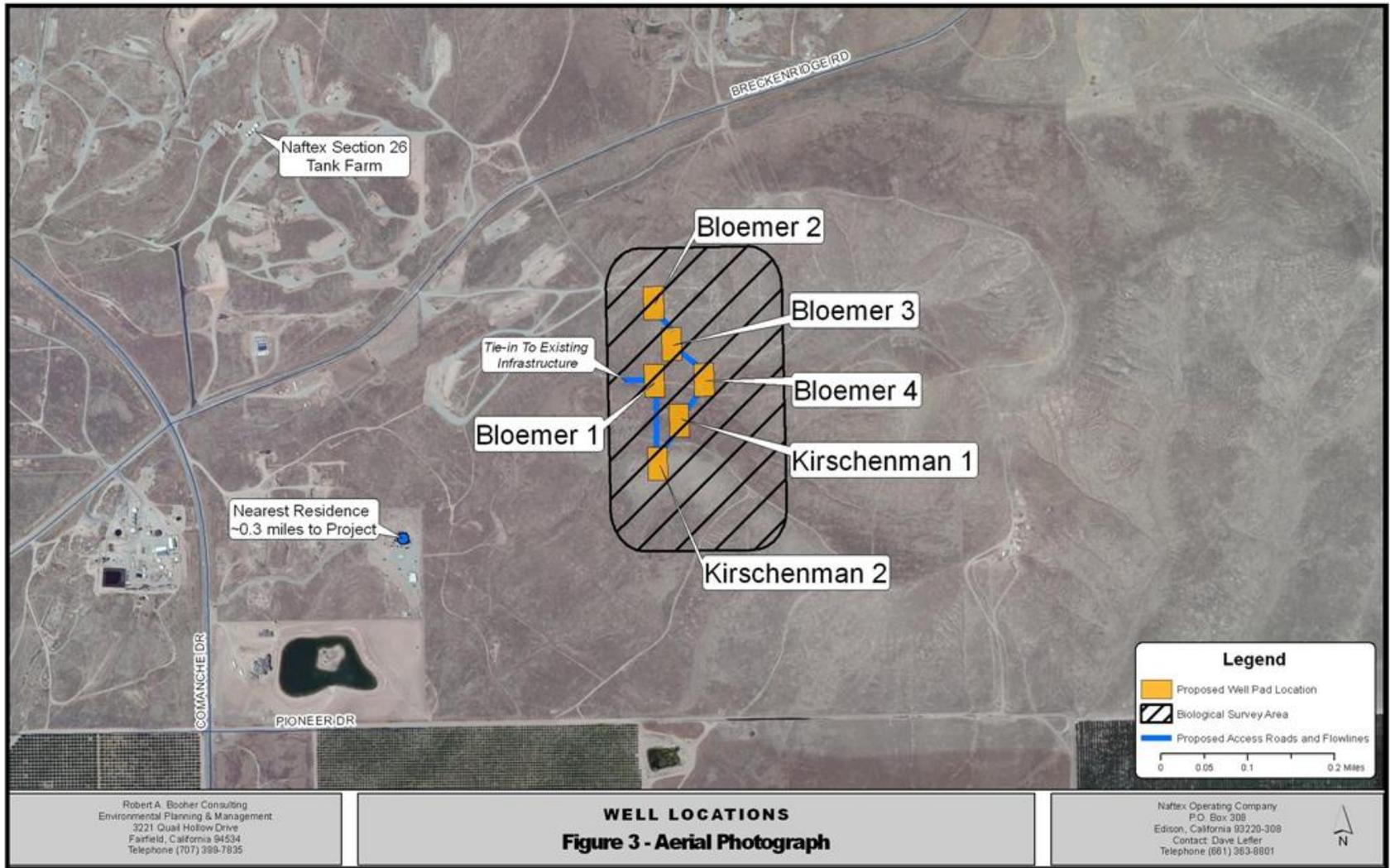
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**WELL LOCATIONS**  
**Figure 1 - Project Vicinity Map**

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**Photograph 1**  
View looking south from north side of the proposed project sites.



**Photograph 2**  
View looking north from south side of proposed project sites.



**Photograph 3**

View looking west from the proposed Bloemer 1 project site toward existing tie in point.

#### **GENERAL PLAN DESIGNATION:**

The proposed project sites are located on property designated as Resource Extensive Agriculture (R-EA) on the Kern County General Plan land use map. According to conversations with David Press with the Kern County Planning Department, mineral, aggregate, and petroleum exploration and extractions are acceptable uses with R-EA designated property. The proposed project is consistent with the land use and zoning designation for the area. The Kern County General Plan Land Use, Open Space and Conservation Element states that petroleum exploration and extraction are consistent uses with agricultural designations.

#### **ZONING**

The proposed project area is zoned Exclusive Agriculture (A). The project is consistent with the Exclusive Agriculture (A) zoning designations per Kern County, California Municipal Code Chapters 19.12.020 and 19.98.020 which include oil drilling and production as a permitted use.

**ENVIRONMENTAL ANALYSIS**  
**Bloemer and Kirschenman Oil Well Project**

ISSUES	Potentially	Less Than	Less Than	No
	Significant	Significant	Significant	No
	Impact	with	Impact	Impact
		Mitigation		
		Incorporated		
<b>I. AESTHETICS</b>				
<i>Would the project:</i>				
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 that would adversely affect day or nighttime views in the area?	_____	_____	X	_____

**Discussion:** The proposed project sites are located in annual grassland habitat. Annual grassland habitat surrounds the proposed project sites to the north, east and south. The Edison Oil Field, a well established oil field with numerous wells is located immediately adjacent to the west of the proposed project sites. According to Division records, the Edison Oil Field has approximately 1,093 active wells, 461 plugged wells, 746 unknown wells, 110 idle wells and 83 new wells within its field boundary. The proposed project sites are relatively flat and are visible from Breckenridge Road which is located northwest of the proposed project sites. No designated scenic roadways are located in the vicinity of the proposed project sites. The closest residence to the proposed project sites is located approximately 0.3 miles to the southwest (see Figures 2 and 3). No significant scenic resources are located at or near the proposed project sites. The project is consistent with polices in the Land Use, Open Space, and Conservation Element of the Kern County General Plan:

Policy 47 – Ensure that light and glare from discretionary new development projects are minimized in rural as well as urban areas.

Policy 48 – Encourage the use of low glare lighting to minimize nighttime glare effects on neighboring properties.

The project is consistent with land use and zoning designation for the area, and is, therefore, considered consistent with the associated visual resource for planning purposes and General Plan.

- Ia.** Annual grassland habitat surrounds the proposed project sites to the north, east and south. The Edison Oil Field, a well established oil field with numerous wells is located immediately adjacent to the west of the proposed project sites. The proposed project will not impact views of any scenic vistas as the proposed project is set back from roadways and residential structures, and views of the proposed project sites are blocked by surrounding hills. Additionally, the drilling phase is short term and temporary in nature lasting a total of 12 days for all 6 wells. Therefore, the proposed project will not have a substantial adverse effect on a scenic vista. The photo simulations presented in Figures 4a, 4b, 5a and 5b are intended to be representative of how drilling and production activities would appear from Breckenridge Road, a public road in the vicinity of the proposed project sites and the nearest residence located 0.3 miles to the southwest of the proposed project sites. Figure 4a below is a photo simulation of how the drill rig and associated drilling equipment would appear from Breckenridge Road. Figure 4b is a photo simulation of how the drill rig and associated drilling equipment would appear from the nearest residence located 0.3 miles to the southwest of the proposed project sites. Figure 5a is a photo simulation of how the production equipment would appear from Breckenridge Road. Figure 5b is a photo simulation of how the production equipment would appear from the nearest residence located 0.3 miles to the southwest of the proposed project sites. The well site visible in Figure 5a is an existing well site.
- Ib.** The proposed project sites are not located adjacent to a state scenic highway. Therefore, the proposed project would not damage the scenic resources within a state scenic highway. No impact.
- Ic.** Drilling an oil well will temporarily change the existing quality and visual character at each of the proposed project sites due to the presence of a drilling rig 100 feet in height at each of the proposed project sites during drilling activities. However, impacts to the existing visual quality and character of the project area associated with drilling activities will be short-term lasting only approximately two (2) days in length for each of the six (6) wells.

If economic quantities of oil are discovered, each well will be completed and production equipment including a well head and API 10 hp electronic motor pumping unit will be installed on site. This equipment is similar in size and shape to tanks, pumps and piping associated with agricultural facilities and other oil and gas sites located throughout the project area. Additionally, no production phase structure on-site will be taller than 25 feet, the proposed project sites are set back from residential structures, and views of the proposed project sites will be blocked by surrounding hills.

Impacts to the existing visual quality and character of the proposed project sites and their surroundings will be less than significant.

**Id.** Night lighting will be used during the short-term drilling phase of the project which is expected to last two (2) days for each of the six (6) wells. Night lighting will not be used for any other phase of the project. The project is designed so night lighting would be directed downward and inward to minimize potential offsite impacts. Based upon the result of site visits conducted by Robert A. Booher Consulting on April 17, 19, 20 and 21, May 28, 29, 30 and 31, June 25, 26, 27 and 28, August 30, and September 4, 5, 6 and 7, 2012, the closest residence to the proposed project sites is located approximately 0.3 miles to the southwest. This residence may be impacted by the temporary presence of night lighting during the drilling phase. However, the drilling phase for each of the proposed wells is short term and temporary in nature approximately two (2) days. Due to project design features (i.e. night lighting directed downward and inward), and because the project's proposed lighting will be minimal to maintain appropriate safety and security, the proposed project will not create a new source of substantial light that will adversely affect nighttime views in the area.

**Conclusion:** Impacts to aesthetics will be less than significant.

**Mitigation Measures:** No significant impacts identified. No mitigation necessary.

**References:**

California Department of Transportation. *Officially Designated State Scenic Highways*  
Website: [www.dot.ca.gov/hg/ILandArch/scenic/shwy.htm](http://www.dot.ca.gov/hg/ILandArch/scenic/shwy.htm)

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



**Figure 4a**  
**Bloemer and Kirschenman Oil and Gas Exploration Project**  
**Photo Simulation of Drill Rig**  
**View to the Southeast of the Proposed Project Sites from Breckenridge Road**  
**Approximately 0.32 Miles Northwest of Well Sites**

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**Figure 4b**  
**Bloemer and Kirschenman Oil and Gas Exploration Project**  
**Photo Simulation of Drill Rig**  
**View to the Northeast of the Proposed Project Sites from Nearest Residence**  
**Approximately 0.34 Miles Southwest of Well Sites**

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**Figure 5a**  
**Bloemer and Kirschenman Oil and Gas Exploration Project**  
**Photo Simulation of Production Facilities**  
**View to the Southeast of the Proposed Project Sites from Breckenridge Road**  
**Approximately 0.32 Miles Northwest of Well Sites**

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**Figure 5b**  
**Bloemer and Kirschenman Oil and Gas Exploration Project**  
**Photo Simulation of Production Facilities**  
**View to the Northeast of the Proposed Project Sites from Closest Residence**  
**Approximately 0.34 Miles Southwest of Well Sites**

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**ISSUES**

*Potentially Significant Impact*      *Less Than Significant with Mitigation Incorporated*      *Less Than Significant Impact*      *No Impact*

**II. AGRICULTURAL AND FOREST RESOURCES**

*Would the project:*

a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	_____	_____	_____	X
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	_____	_____	_____	X
c. Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland, to non-agricultural use, or conversion of forestland to non-forest use?	_____	_____	_____	X
d. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)) or timberland (as defined by Public Resources Code section 4526)?	_____	_____	_____	X
e. Result in the loss of forest land or conversion of forest land to non-forest use?	_____	_____	_____	X

**Discussion:** The proposed project sites are located on annual grassland habitat. The project area is designated as Grazing Land (lands on which the existing vegetation is suited to the grazing of livestock) on the Kern County Important Farmland Map 2010. The Kern County Williamson Act Lands Map indicates that the proposed project sites are not currently under a Williamson Act contract. The proposed project sites are located on property designated as Resource Extensive Agriculture (R-EA) on the Kern County General Plan land use map. The proposed project is consistent with land use and zoning designation for the area.

**IIa.** The proposed project sites are designated as Grazing Land (lands on which the existing vegetation is suited to the grazing of livestock) on the Kern County Important Farmland Map 2010. The proposed project would convert 4.3 acres of

grazing land zoned Exclusive Agriculture to non-agricultural use. Petroleum exploration and extraction is an allowed use under the Kern County Zoning Ordinance 19.12 for Exclusive Agriculture (A). Thus, there would be no impact to Prime Farmland, Unique Farmland or Farmland of Statewide Importance.

- Iib.** The Kern County Williamson Act Lands Map indicates that the proposed project sites are not currently under a Williamson Act contract. The proposed project is consistent with the Kern County Zoning Ordinance, Chapters 19.12.020 and 19.98.020. The proposed project will not conflict with existing zoning for agricultural use, or a Williamson Act contract; therefore, there is no impact.
- Iic.** The project will impact 4.3 acres of grazing land. The project will not involve other changes in the existing environment which, due to their location or nature, could result in conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance Farmland (Farmland), to non-agricultural use, or conversion of forest land to non-forest use. No impact.
- Iid.** No forest resources are located within the proposed project sites and the proposed project sites are not zoned for timber harvest. No impact.
- Iie.** No forest resources are located within the proposed project sites and the proposed project sites are not zoned for timber harvest. No impact.

**Conclusion:** No impact.

**Mitigation Measures:** No impact identified. No mitigation necessary.

**References:**

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

California Department of Conservation. *Williamson Act Program*.  
Website: <http://www.conservation.ca.gov/dlrp/lca/Pages/Index.aspx>.

**ISSUES**

	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
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**III. AIR QUALITY**

*Would the project:*

a. Conflict with or obstruct implementation of the applicable air quality plan?	_____	_____	X	_____
b. Violate any air quality standard or contribute 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 that 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	_____

**Discussion:** The proposed project sites lie within the south central portion of the San Joaquin Valley Air Basin (SJVAB), which is the second largest air basin in the state. The SJVAB encompasses eight counties: San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, and Tulare Counties and the valley portion of Kern County. The SJVAB is managed by the San Joaquin Valley Air Pollution Control District (SJVAPCD) and is defined by the Sierra Nevada Mountains in the east, the Coast Ranges in the west, and the Tehachapi Mountains in the south. These surrounding mountains serve to confine or “trap” air pollution. The valley is characterized by low wind speed, and hot sunny weather which is conducive to the formation of ozone (smog).

The main sources of ozone precursors in the valley (NOx and ROG) are cars and trucks. Based on the 2010 emissions inventory for the San Joaquin Valley, cars and trucks contribute 81% of the NOx emissions and 35% of the ROG emissions. Stationary sources contribute 15% of the NOx emissions and 5% of the ROG emissions. Oil and gas production and marketing releases 0.007% of the NOx and 9.7% of the ROG emissions, while the majority of the ROG emissions from oil and gas production and marketing come from petroleum marketing and distribution—as opposed to oil exploration and production.

The SJVAPCD is in non-attainment for ozone for Federal and State standards and PM10 for State standards, the District is in attainment with PM10 for Federal Standards. To reduce emissions and bring the valley into compliance with ozone and PM-10 State standards, the SJVAPCD adopted the 2007 Ozone Plan. This Plan was reviewed and approved by CARB and the federal EPA. This Plan sets forth specific requirements which will substantially lessen

cumulative impacts from NO<sub>x</sub> and ROG emissions. The Plan was formally adopted by the SJVACPD through a public review process in 2007. Details of the Plan can be found at: [http://www.valleyair.org/Air\\_Quality\\_Plans/Ozone\\_Plans.htm](http://www.valleyair.org/Air_Quality_Plans/Ozone_Plans.htm)

Consistent with this Plan, SJVAPCD has adopted an aggressive set of policies, rules and regulations that include the adoption of indirect source review (ISR) and the nation's most stringent limits on NO<sub>x</sub> emissions from boilers, heater and IC engines. The following rules are aimed at reducing emissions from oil and gas production:

Rule 4306 – Reduction of NO<sub>x</sub> from boilers, heaters and steam generators

Rule 4624 – Transfer of organic liquids

Rule 4702 – Limits on NO<sub>x</sub> emissions from IC engines

Rule 4409 - Components at production facilities

Collectively, these policies are reducing NO<sub>x</sub> and ROG emissions. See attached forecast of NO<sub>x</sub> emissions in San Joaquin Valley for the period 2005 thru 2023. This forecast appears as Figure ES-1 in the Executive Summary for the 2007 Ozone Plan, dated April 30, 2007. The project will comply with the 2007 Ozone Plan and with the above noted rules.

The air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state law. These regulated air pollutants are known as “criteria air pollutants” and are categorized into primary and secondary pollutants. Primary air pollutants are those that are emitted directly from sources. Carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), coarse inhalable particulate matter (PM<sub>10</sub>), fine inhalable particulate matter (PM<sub>2.5</sub>), and lead (Pb) are primary air pollutants. VOC and NO<sub>x</sub> go on to form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O<sub>3</sub>) and nitrogen dioxide (NO<sub>2</sub>) are the principal secondary pollutants. Other pollutants, such as carbon dioxide (CO<sub>2</sub>), a natural by-product of animal respiration that is also produced in the combustion process, have been linked to such phenomena as global climate change. A discussion of CO<sub>2</sub> and greenhouse gases is included in Section VII, Greenhouse Gas Emissions.

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. The SJVAPCD defines sensitive receptors as locations where there are human populations and where there is a reasonable expectation of continuous human exposure according to the averaging period for the ambient air quality standards (AAQS). The most sensitive portions of the population are children, the elderly, the acutely ill, and the chronically ill, especially those with cardiorespiratory diseases. Residential areas are considered to be sensitive receptors to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Other sensitive receptors include retirement facilities, hospitals, and schools. The closest residence to the proposed project sites is located approximately 0.3 miles to the southwest. The project will not create objectionable odors that would affect a substantial number of people as it is located in a remote, rural location.

The SJVAPCD has established Thresholds of Significance: Criteria for Determining Environmental Significance. These thresholds separate a project's short-term emissions from its

long-term emissions. Short-term emissions are mainly related to the construction phase of the project and are recognized to be short in duration. Long-term emissions are primarily related to activities that will occur indefinitely as a result of project operations.

A producing well will result in operational emissions, which have the potential to contribute to the possible violation of an existing air quality standard or an existing or projected air quality violation. Sources of operational emissions include fugitive emissions from the well, some storage tanks, piping, compressors, separators, and loading racks and point source emissions from steam generators, some storage tanks, and internal combustion equipment installed as part of the operation of a new well, including thermally enhanced wells. Indirect operational emissions include vehicle trips associated with employees and contractors needed to operate and maintain the oil production operation.

The installation of the above equipment is subject to permit requirements of the SJVAPCD. One major requirement is that new and modified equipment that has air contaminant emissions must satisfy the requirements of New Source Review (NSR). The main requirements of NSR are to require the installation of best available control technology to minimize emission increases from such equipment and to mitigate emission increases over certain thresholds by providing emission reductions either by limiting the use of existing equipment or by providing emission offsets.

These requirements are intended to allow for economic growth but not interfere with the District's efforts to achieve or maintain attainment with ambient air quality standards. As a result of implementation of project design elements, compliance with SJVAPCD Air Pollution Control District permit requirements, and implementation of the identified operational procedures, project related impacts on air quality will be reduced to less than significant.

**IIIa.** The SJVAPCD has prepared an Air Quality Attainment Plan (AQAP) to enable the San Joaquin Valley to attain air quality standards by the earliest practicable date. Short-term emission impact is anticipated as part of the proposed project. Short-term emissions may impact implementation of the SJVAPCD AQAP, but with measures included in the project, it will be a less than significant impact. Short-term emission impacts include particulate matter emissions that are expected to occur during the construction of each drill site and from daily ingress and egress of vehicles on the unpaved access road. Construction also will produce exhaust emissions resulting from transportation of workers and machinery to and from each site as well as operation of equipment on-site. Typical equipment used for this project may include diesel drill rig, bulldozer, grader, loader, compacter, heavy-duty trucks, baker tanks, air compressors, pumps, and generators.

However, earthmoving activities at the proposed project sites will not exceed the non-residential project limit of 5.0 or more acres and will not move, deposit, or relocate more than 2,500 cubic yards per day of bulk materials on at least three days. Therefore, a Dust Control Plan will not be required as specified in Regulation VIII, Rule 8021, Section 6.3.1. The operator will provide written notification to the SJVAPCD at least 48 hours prior to beginning earthmoving operations as required. The proposed project would not significantly conflict with or obstruct implementation of the SJVAPCD Air Quality Attainment Plan.

**IIIb,c.** RAB Consulting prepared emissions calculations to determine the quantity of following category of air pollutants:

- Criteria Air Pollutants (ROG, NOx, PM-10)
- Toxic Air Pollutants
- Greenhouse Gases (GHG)

The procedure for estimating these emissions and their significance is discussed below.

Estimate of Criteria Air Pollutant Emissions

Criteria pollutant emissions were estimated using Road Construction Emissions Model, Version 6.3.2 software, which is recommended by the SJVAPCD for use in calculating air emissions for this type of project. Criteria pollutant emissions for the project were estimated based upon lists of equipment for each phase of the project provided by Naflex. The duration of each phase per well is as follows:

- Site Preparation 3 days
- Drilling 2 days
- Completion 2 days
- Installation of Production Equipment 3 days
- Production 365 days
- Plugging and Abandonment 2 days

Equipment used for each phase of the project is summarized in Tables 4 through 9.

**Table 4  
 Equipment Usage for Site Preparation Phase for Each Well**

<b>Equipment</b>	<i>No.</i>	<i>Horsepower</i>	<i>Hrs/day</i>	<i>No. Days</i>
Grader	1	245	8	2
Front-End Loader	1	163	8	2
Backhoe	1	107	4	1
<b>Mobile Sources</b>	<i>Trips/Day</i>	<i>Round Trip Miles</i>	<i>Hrs/Day</i>	<i>No. Days</i>
Water Truck	2	50	8	3
Passenger Cars/Pick-Up Trucks (2 hrs/trip)	2	100	8	3
Heavy Duty Trucks/Semis (4 hrs/trip)	2	100	8	2

**Table 5**  
**Equipment Usage for Drilling Each Well**

<b>Equipment</b>	<i>No.</i>	<i>Horsepower</i>	<i>Hrs/day</i>	<i>No. Days</i>
Loader/Forklift	1	170	8	2
Drill Rig	1	600	24	2
Electric Generator	1	600	24	2
Mud Pump	1	1,000	16	2
Draw Works	1	530	24	2
<b>Mobile Sources</b>	<i>Trips/Day</i>	<i>Round Trip Miles</i>	<i>Hrs/Day</i>	<i>No. Days</i>
Water Truck	2	50	6	2
Passenger Cars/Pick-Up Trucks (2 hrs/trip)	10	100	8	2
Heavy Duty Trucks/Semis (4 hrs/trip)	2	100	8	2
Heavy Duty Trucks/Semis (4 hrs/trip) Mobilization and Demobilization	5	100	8	1
Average number Heavy Duty Vehicle Trips (2 trips x 2 days + 5 trips over 1 day = 9 trips/2 days = 4.5 trips/day)	4.5	100	8	2

**Table 6**  
**Equipment Usage for Completion Phase for Each Well**

<b>Equipment</b>	<i>No.</i>	<i>Horsepower</i>	<i>Hrs/day</i>	<i>No. Days</i>
Backhoe	1	107	4	2
Workover Rig Motor	1	500	8	1
Coil Tubing Rig Motor	1	500	4	2
Cementing Truck	1	500	4	2
Welding truck	1	32	4	1
<b>Mobile Sources</b>	<i>Trips/Day</i>	<i>Round Trip Miles</i>	<i>Hrs/Day</i>	<i>No. Days</i>
Water Truck	2	50	4	2
Passenger Cars	2	100	8	2
Heavy Duty Truck/Semi – Coil Tubing Operations	2	100	8	2
Heavy Duty Truck/Semi – Cementing Operations	2	100	8	1
Heavy Duty Truck/Semi – Equipment Removal	2	100	8	1
Pick-Up Trucks - Welder	1	100	4	1

**Table 7**  
**Equipment Usage Installation of Production Equipment (Flowline)**

<b>Equipment Type and Quantity of Each</b>	<b>Days of Operation</b>	<b>Hours Operation Daily</b>	<b>Maximum Daily Vehicle Trips</b>	<b>Mobilization and Demobilization Trips</b>
Fork Lift (1)	3	12	0	0
Front End Loader (1)	3	12	0	0
Welding Truck (1)	3	12	0	0
Welder (1)	3	12	0	0
Side-Boom Crane (1)	3	12	0	0
Worker Transport - Light Trucks/Passenger Cars (3/Day)	3	Round Trip Distance 50	3 trips/day	0
Heavy Duty Trucks (Semi) (2)	1	Round Trip Distance 50	2 trips/day	0

**Table 8**  
**Equipment Usage for Production Phase**

<b>Equipment Type and Number of Equipment</b>	<b>Hours Operation</b>
Well Head	24 hours per day/7 days per week
Pumping Unit (10 hp electric motor)	24 hours per day/7 days per week
Pickup Truck Operator (1)	7 days a week

**Table 9**  
**Equipment Usage for Plugging and Abandonment Phase for Each Well**

<b>Equipment</b>	<b>No.</b>	<b>Horsepower</b>	<b>Hrs/day</b>	<b>No. Days</b>
Backhoe	1	107	4	2
Workover Rig Motor	1	500	8	1
Coil Tubing Rig Motor	1	500	4	2
Cementing Truck	1	500	4	2
Welding truck	1	32	4	1
<b>Mobile Sources</b>	<b>Trips/Day</b>	<b>Round Trip Miles</b>	<b>Hrs/Day</b>	<b>No. Days</b>
Water Truck	2	50	4	2
Passenger Cars	2	100	8	2
Heavy Duty Truck/Semi – Coil Tubing Operations	2	100	8	2
Heavy Duty Truck/Semi – Cementing Operations	2	100	8	1
Heavy Duty Truck/Semi – Equipment Removal	2	100	8	1
Pick-Up Trucks - Welder	1	100	4	1

**Emissions of Criteria Air Pollutants**

Table 10 summarizes the tons per year of criteria pollutant emissions that would be produced from a single well site and a single well.

**Table 10**  
**Criteria Pollutant Emission Rates for One (1) Well Site and One (1) Well**  
*(Emissions estimated as 0.0 tons/year in the Roadway Model are reported as 0.04 tons/year)*

<b>Project Phase</b>	<b>ROG (tons)</b>	<b>NOX (tons)</b>	<b>PM-10 (tons)</b>
Site Preparation Phase	0.04	0.04	0.04
Drilling Phase	0.04	0.2	0.04
Completion Phase	0.04	0.04	0.04
Installation of Production Equipment	0.04	0.04	0.04
Production Phase	0.04	0.04	0.04
Plugging and Abandonment Phase	0.04	0.04	0.04
<b>Totals</b>	<b>0.24</b>	<b>0.40</b>	<b>0.24</b>

Table 11 summarizes the tons per year of criteria pollutant emissions that would be produced by all six (6) Naftex well sites. Detailed calculations are presented in Attachment B.

**Table 11**  
**Criteria Pollutant Emissions Rates for All Six (6) Well Sites and Six (6) Wells**

<b>Project Phase</b>	<b>ROG (ton/yr)</b>	<b>NOX (ton/yr)</b>	<b>PM-10 (ton/yr)</b>
Site Preparation Phase	0.24	0.24	0.24
Drilling Phase	0.24	1.2	0.24
Completion Phase	0.24	0.24	0.24
Installation of Production Equipment	0.24	0.24	0.24
Production Phase	0.24	0.24	0.24
Plugging and Abandonment Phase	0.24	0.24	0.24
<b>Total</b>	<b>1.44</b>	<b>2.4</b>	<b>1.44</b>

**Project Impacts from Criteria Air Pollutants**

SJVAPCD has established thresholds of significance for several criteria air pollutants. The thresholds of significance are in terms of annual tons of PM10, ROG and NOx. CEQA Guidelines Section 15064.7 expressly authorizes the adoption of thresholds of significance and these thresholds may be used by a lead agency to determine the significance of a project's impacts.

A comparison of project emissions with the adopted thresholds of significance is presented in Table 12. As data in this table shows, project impacts are below the thresholds of significance. Consequently, the project would not lead to significant air quality impacts. Cumulative impacts are discussed in Section XVIII Mandatory Findings of Significance.

**Table 12**  
**SJVAPCD Significance Thresholds**

<b>Air Pollutant</b>	<b>Significance Criteria Tons/Year</b>	<b>Maximum Annual Project Emissions 2013</b>
Reactive Organic Gas (ROG)	10	1.44
Nitrogen Oxides (NO <sub>x</sub> )	10	2.4
Particulates (PM <sub>10</sub> )	15	1.44

**III.d.** The proposed project sites are located within an unincorporated area of Kern County. Scattered rural residences are located throughout the project area. The proposed project sites would be located away from rural residences. Rural residences are considered a sensitive receptor. The closest residence is located approximately 0.3 miles southwest of the proposed project sites.

**Criteria Air Pollutant Concentrations**

Project activities would create pollutants that would be released to the localized area of the proposed project sites. However, these pollutants would greatly disperse prior to reaching a sensitive receptor. Due to the distance of the proposed project sites from the sensitive residential receptor in the project area, and the fact that project emissions are below the thresholds of significance, the project is not expected to subject sensitive receptors to substantial pollutant concentrations.

**Short-Term Emissions and Impacts**

The main short-term toxic air contaminant associated with the construction phase (site-preparation, drilling and production installation phases) of this project is diesel particulate matter (DPM) released from on-site equipment. The emission rates of DPM were previously calculated using the Roadway Model for individual phases of the project. The emission rates appear under “Exhaust PM-10” in the emissions summary provided in Attachment B. Overall short-term construction related emissions are summarized below.

**Table 13  
 Summary of Short-Term Emissions of Toxic Air  
 Pollutants from a Single Well**

<b>Project Phase</b>	<b>DPM</b>	<b>Duration</b>	<b>Total</b>
	<i>(lbs/day)</i>	<i>(days)</i>	<i>(lbs)</i>
Site Preparation	0.6	3	1.8
Drilling	9.0	2	18
Completion Phase	0.9	2	1.8
Production Equipment Installation	1.2	3	3.6
Plugging and Abandonment	0.9	2	1.8
<b>TOTALS</b>	<b>12.6</b>	<b>12</b>	<b>27.0</b>

Note: Exhaust PM-10 emission rates are calculated using the ROADWAY model.

Short-term impacts to public health were estimated on the basis of the facility risk prioritization score. The score is based on the AB 2588 Air Toxics Hotspots Information and Assessment Act of 1987. The spreadsheet for estimating the facility

score was obtained from the SJVAPCD. The facility score is based on 27.0 lbs/yr of DPM. A score of 0.14 “Low” was calculated at the nearest residence 1,584 feet from the proposed project sites. Given this low level of projected public health risk, a more refined risk analysis is not necessary. The risk would be lower at residences located beyond 0.3 miles. Since the facility prioritization score is well below 10, this indicates that short-term impacts associated with the proposed project would not lead to significant public health risks and that a detailed risk analysis is not required. A copy of the prioritization score is provided in Attachment B.

### **Long-Term Emissions and Impacts**

There would be no on-site sources of toxic air contaminants at any of the proposed project sites. Sources of toxic emissions during the production phase would include passenger cars or pick-up trucks used by staff and workers. These emissions would occur off-site and would not contribute to health risks to residents near the proposed project sites. Fugitive emissions from the well head would be very small. According to EPA developed protocol for fugitive emissions of hydrocarbons from various components such as pumps, valves and flanges, the emission rate of VOCs depends on the severity of the leak. For well maintained equipment that is subject to leak detection and repair, the emission rate varies between  $3.1 \times 10^{-7}$  to  $2.4 \times 10^{-5}$  kg/hr. See Table C-3, “Protocol for Leak Equipment Emission Estimates”. EPA document 453/R-95-017, November 1995.

Over one year, this translates into a maximum of 0.2 kg/year. Note that all equipment will be subject to District Rule 4409 that specifically requires regular inspection and maintenance of well components to prevent leaks.

**IIIe.** The proposed project sites are located within an unincorporated area of Kern County. Scattered rural residences are located throughout the project area. The proposed project sites would be located away from rural residences. Rural residences are considered a sensitive receptor. The closest residence is located approximately 0.3 miles southwest of the proposed project sites.

Project activities may create odors, but they would only be perceptible in close proximity approximately 250 feet to 500 feet from the proposed project sites. Due to the distance of the proposed project sites from the residence, the project is not expected to create objectionable odors that would be noticeable at this residence. As such, impacts from odors would be considered less than significant.

**Conclusion:** Mitigation measures shall reduce potential impacts to air quality to a level of less than significant.

**Mitigation Measures:** In order to reduce impacts to air quality to a less than significant level, the following mitigation measures will be implemented:

Air Quality 1 - All disturbed areas, including storage piles, which are not being actively used for construction purposes, shall be effectively stabilized using water.

Air Quality 2 - Unpaved access roads shall be effectively stabilized of dust emissions using water.

Air Quality 3 - All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions by using the application of water or by presoaking.

Air Quality 4 - When materials are transported off-site, all material shall be covered, effectively wetted to limit visible dust emissions, or at least six (6) inches of freeboard space from the top of the container shall be maintained.

Air Quality 5 - Following addition of materials to, or removal of materials from the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions by using sufficient water.

Air Quality 6 - Limit traffic speeds on unpaved access roads to 15 mph.

**References:**

San Joaquin Valley Air Pollution Control District, *Guide for Assessing and Mitigating Air Quality Impacts*.

Website: [http://www.valleyair.org/transportation/ceqa\\_idx.htm](http://www.valleyair.org/transportation/ceqa_idx.htm)

SJVAPCD Rules Website: <http://www.valleyair.org/rules/1ruleslist.htm>

California Environmental Quality Act (CEQA Guidelines)

California Environmental Protection Agency, *Air Toxics Hot Spots Program Risk Assessment Guidelines; The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessment* (August 2003)

**ISSUES**

*Potentially Significant Impact*      *Less Than Significant with Mitigation Incorporated*      *Less Than Significant Impact*      *No Impact*

**IV. BIOLOGICAL RESOURCES**

*Would the project:*

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

**Discussion:** A biological assessment report was prepared for the proposed project in January 2013, and is attached to this initial study/mitigated negative declaration (Attachment C). This report provides a detailed discussion of the biological resources present and potentially present within the project area. Field surveys (including protocol-level surveys for blunt-nosed leopard lizards (BNLL) were conducted on April 17, 19, 20 and 21, May 28, 29, 30 and 31, June 25, 26, 27 and 28, August 30, and September 4, 5, 6 and 7, 2012 to determine if special-status plant or animal species or suitable habitats occurred within the proposed project sites, proposed access roads, existing access roads, and buffer areas. Surveys also sought to determine if the proposed project would have an adverse effect on these species or habitats.

The biological assessment found no sensitive plant or animal species present within the proposed project sites, proposed access roads or buffer area around these areas. However, suitable habitat for sensitive plant and animal species was observed within both the project sites and buffer areas during biological surveys. No riparian, wetland, stream, vernal pool, or other sensitive community types were observed during the biological assessment. The proposed project sites, proposed access roads, and the buffers of these areas consist of non-native grassland habitat.

Common animal species observed during biological surveys included Turkey vulture (*Cathartes aura*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), house sparrow (*Passer domesticus*), Western meadowlark (*Sturnella neglecta*), mourning dove (*Zenaidura macroura*), Black-tailed jackrabbit (*Lepus californicus*), Desert cottontail (*Sylvilagus audubonni*), Western whiptail (*Aspidoscelis tigris*), Pacific gopher snake (*Pituophis catenifer*), Western fence lizard (*Sceloporus occidentalis*), Common side-blotched lizard (*Uta stansburiana*) and California ground squirrel (*Otospermophilus beecheyi*).

Plant species observed during field surveys included Blow wives (*Achyraea mollis*), Fiddleneck (*Amsinckia intermedia*), Ranchers fireweed (*Amsinckia menziesii*), Mt. Diablo locoweed (*Astragalus oxyphysus*), Saltbush (*Atriplex polycarpa*), Slender wild oats (*Avena barbata*), Wild oat (*Avena fatua* L.), Black mustard (*Brassica nigra* (L.) Koch), Soft chess brome (*Bromus hordeaceus*), Red brome (*Bromus madritensis ssp. Rubens*), Rip-gut brome (*Bromus rigidus* Roth), Red maids (*Calandrinia ciliate*), Shepherd's-purse (*Capsella bursa-pastoris*), Turkey mullein (*Croton setigerus*), Redstem filaree (*Erodium cicutarium*), Broadleaf filaree (*Erodium botrys*), California poppy (*Eschscholzia californica*), Hare barley (*Hordeum leporinum*), Common mallow (*Malva neglecta* Wallr.), Horehound (*Marrubium vulgare*), Pineapple-weed (*Matricaria matricariodes*), Perennial sowthistle (*Sonchus arvensis* L.), Spiny sowthistle (*Sonchus asper* (L.) Hill), Annual sowthistle (*onchus oleraceus* L.), Vinegar weed (*Trichostema lanceolatum*) and Red clover (*Trifolium pretense*).

Results from biological surveys for the proposed project are presented below:

**San Joaquin Kit Fox** - We observed no potential burrows within the proposed project sites and buffer areas that could be utilized by this species during our biological surveys. There were no "active signs" (i.e., adult and puppy scat, prey remains, tracks, fur, etc.) of use by San Joaquin kit fox observed during surveys. In addition, no known dens of this species were observed during biological surveys of the proposed project sites or buffer areas. San Joaquin kit foxes have been

documented approximately 0.95 miles northwest of the proposed Bloemer 2 well site (CDFW 2012) (see Figure 6).

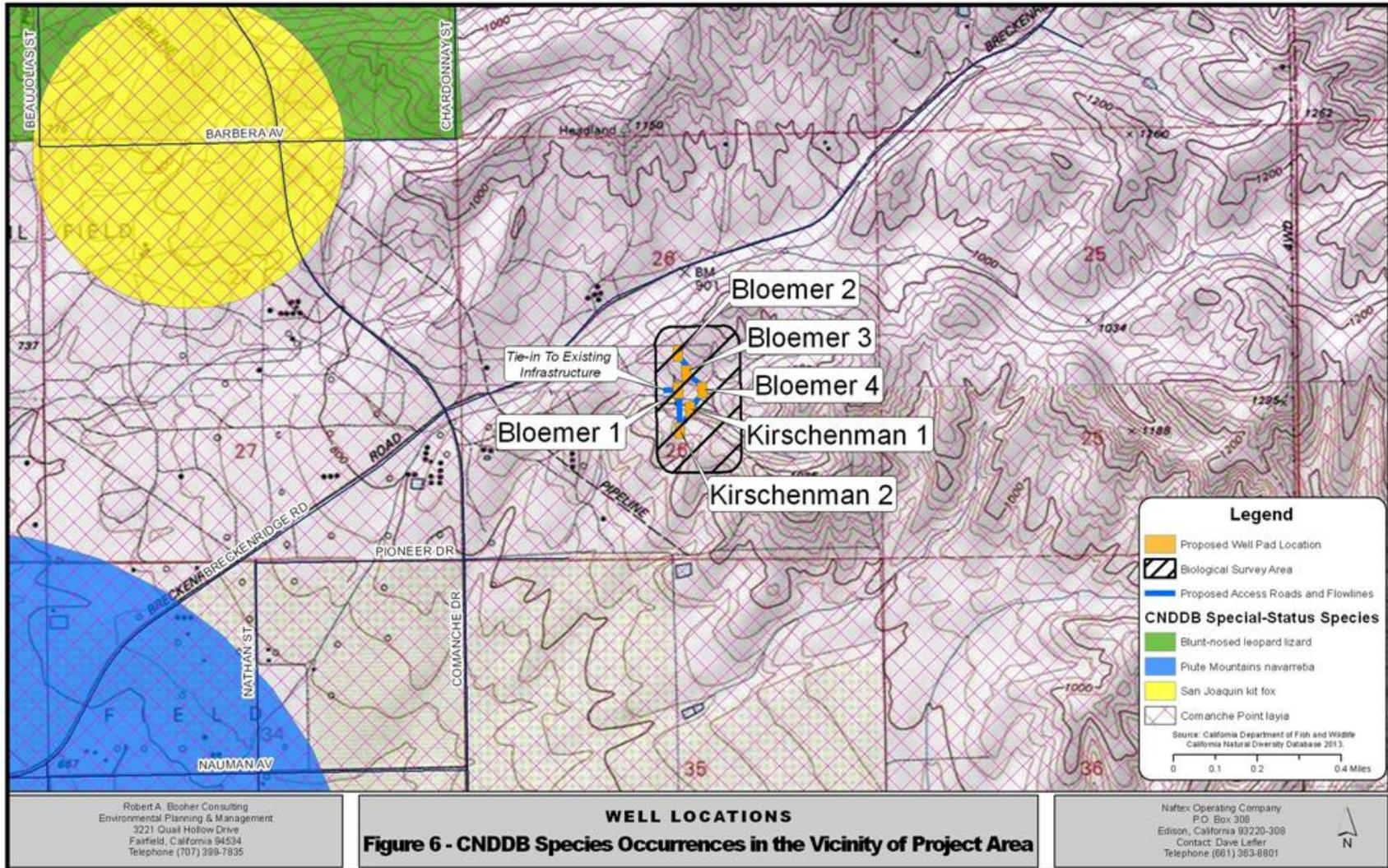
**American Badger** - We observed no potential burrows within the proposed project sites and buffer areas that could be utilized by this species during our biological surveys. There were no “active signs” (i.e., adult and puppy scat, prey remains, tracks, fur, etc.) of use by American badgers observed during surveys. In addition, no known dens of this species were observed during biological surveys of the proposed project sites or buffer areas. American badgers have not been documented within the proposed project area by CNDDDB (CDFW 2012) (see Figure 6).

**Sensitive Small Mammal Species** - We found no evidence (i.e., pit cache holes, scats, tracks, tail drags, etc.) of Tipton kangaroo rats within the proposed project sites or their buffer areas during biological surveys. We observed potential burrows (California ground squirrel burrows) within the proposed project sites or buffer areas. We found appropriate vegetative communities for this species (annual grassland habitat) within all areas surveyed during biological surveys. No individual Tipton kangaroo rats were observed during surveys. This species has not been documented within the proposed project area by CNDDDB (CDFW 2012) (see Figure 6).

Potential habitat for Tulare grasshopper mice and San Joaquin pocket mice was observed in annual grassland habitat within the proposed project sites and buffer areas during biological surveys. We observed potential refuge burrows (California ground squirrel burrows) within the proposed project sites or buffer areas. We found no evidence (i.e., scat, tracks, etc.) of these species (recent and/or past use) within the proposed project sites or their buffer areas. No individual mice were observed during surveys. These species have not been documented within the proposed project area by CNDDDB (CDFW 2012) (see Figure 6).

We observed potential foraging habitat for the pallid bat within all areas surveyed during biological surveys. However, we did not observe any known or potential maternity or roosting sites during biological surveys. No individual pallid bats were observed during biological surveys. This species has not been documented within the project area (CDFW 2012) (see Figure 6). This species may forage intermittently throughout the project area, but is not expected to nest.

**Blunt-Nosed Leopard Lizard (BNLL)** – No BNLLs (*Gambelia sila*) were observed during protocol level surveys conducted within the proposed project site and buffer area. We recorded western whiptails (*Aspidoscelis tigris*), western fence lizards (*Sceloporus occidentalis*), and common side-blotched lizards (*Uta stansburiana*) within the proposed project sites and buffer areas during surveys. We observed burrows within the proposed project sites and buffer areas that were large enough (entrance size, width, etc.) to provide refugia for BNLL. Table 14 below provides the results of BNLL surveys as well as the survey dates and weather conditions during our surveys at the project sites.



Chesmore (1980 and 1981) identified specific vegetation associations that could be used to assist in the identification of preferred habitat for BNLL: Arabian grass (*Schismus arabicus* and *S. barbatus*) is positively correlated with the occurrence of BNLL while red brome (*Bromus rubens*) is negatively correlated. While we did not take quantitative measurements of vegetation during our surveys, red brome was observed as being somewhat dense in the survey area. Dense red brome growth can become problematic for BNLL foraging. *Gambelia sila* (*G. sila*) is one of a number of species in the San Joaquin Valley whose habitat has been greatly modified by invasive annual grasses and might benefit from management actions that would keep habitats open (Germano et al. 2001).

We observed an adequate prey base of grasshoppers and beetles within the project area. In general, *G. sila* seems to be an opportunistic predator that eats whatever is most abundant and it is able to catch (Germano et al. 2007). It is known to eat invertebrates and lizards (Montanucci 1965, 1967), including its own young (Montanucci 1965, Germano and Williams 1994).

We evaluate the project sites and buffer areas as being suitable habitat in its current state for BNLL because suitable burrows that provide refuge cover for this species occur within the proposed project sites and buffer areas. Protocol-level surveys were conducted and no BNLL were detected.

**Table 14**  
**Blunt-Nosed Leopard Lizard Survey Results**

Date	Start Time	End Time	Start Air Temp	End Air Temp	#BNLL Observed Adults/Hatchlings	Number of Biologist
04/17/12	1230	1500	80	87	0/0	2
04/19/12	1141	1349	77	80	0/0	2
04/20/12	1019	1245	80	87	0/0	2
04/21/12	0945	1150	84	93	0/0	2
05/28/12	1105	1400	78	83	0/0	2
05/29/12	1115	1345	81	87	0/0	4
05/30/12	1050	1250	81	87	0/0	2
05/31/12	1105	1310	88	95	0/0	2
06/25/12	1340	1428	90	92	0/0	4
06/26/12	1020	1320	81	89	0/0	3
06/27/12	0800	1140	77	95	0/0	2
06/28/12	0745	0580	77	82	0/0	4
08/30/12	0740	1000	77	89	0/0	2
09/04/12	0740	0900	78	85	0/0	4
09/05/12	0740	1015	78	90	0/0	2
09/06/12	0730	1015	77	95	0/0	2
09/07/12	0745	1012	77	92	0/0	2

**Sensitive Avian Species** - Potential habitat for burrowing owls was observed in annual grassland habitat within the proposed project sites and buffer areas during biological surveys. Potential burrows (California ground squirrel burrows) that could be used by this species for nesting

activities were observed during biological surveys in all areas surveys. However, no burrowing owls were observed during biological surveys, and no evidence of their presence (white wash, feathers, small mammal bones, owl pellets, etc.) was observed during surveys. This species has not been documented by CNDDDB within the proposed project area (CDFW 2012) (see Figure 6).

A number of avian species protected under the Federal Migratory Bird Treaty Act were observed foraging during field surveys (see Table 4 within the attached Biological Assessment). No active or inactive nesting sites were observed during biological surveys. No potential nesting habitat for migratory avian species was observed within the proposed project sites and buffer areas during biological surveys. Therefore, migratory avian species have no potential to nest in the proposed project sites or buffer areas.

**Special-Status Plants** – No special-status plant species were identified during the course of botanical surveys within the proposed project sites and buffer areas. Surveys were conducted during the appropriate blooming period of all of the targeted special-status plant species identified in Table 2 within the attached Biological Assessment as potentially occurring within the proposed project sites and buffer areas. The annual grassland habitat found within the proposed project sites and buffer areas is disturbed due to ongoing cattle grazing and agricultural activities, and the likelihood of special-status plant species occurring within the proposed project sites is unlikely. Additionally, non-native weedy grassland species within the proposed project sites and buffer areas likely out compete special-status species that could occur within the proposed project sites and buffer areas.

**Habitat Types** – Habitat types observed during field surveys are described further below:

#### Ruderal/Disturbed

This habitat type was observed within and along the edges of the existing access road from which the proposed access roads to the proposed well sites would be constructed. Common plant species found in this community were composed primarily of weedy non-native and native species. Vegetative species observed included slender wild oats (*Avena barbata*), wild oat (*Avena fatua* L.), black mustard (*Brassica nigra* [L.] Koch), soft chess brome (*Bromus hordeaceus*), rip-gut brome (*Bromus rigidus* Roth), common mallow (*Malva neglecta* Wallr.), pineapple-weed (*Matricaria matricarioides*), perennial sowthistle (*Sonchus arvensis* L.), spiny sowthistle (*Sonchus asper* [L.] Hill), and annual sowthistle (*Sonchus oleraceus* L.).

Wildlife use of this community is limited due to the monocultural and weedy nature of plant species present. Although the diversity of wildlife is limited, species that do occur in the habitat type are often abundant and well adapted to the presence of humans.

#### Non-Native Annual Grassland

Non-native annual grassland was observed covering all six (6) proposed well sites, the proposed access roads to the six (6) proposed well sites, and the buffer areas of the proposed well sites and access roads. Common species found in this vegetative community were composed of introduced grasses and broadleaf weedy species. Plant species observed during field surveys included

fiddleneck (*Amsinckia intermedia*), ranchers fireweed (*Amsinckia menziesii*), Mt. Diablo locoweed (*Astragalus oxyphysus*), saltbush (*Atriplex polycarpa*), slender wild oats (*Avena barbata*), wild oat (*Avena fatua* L.), black mustard (*Brassica nigra* [L.] Koch), soft chess brome (*Bromus hordeaceus*), red brome (*Bromus madritensis ssp. rubens*), rip-gut brome (*Bromus rigidus* Roth), red maids (*Calandrinia ciliata*), shepherd's-purse (*Capsella bursa-pastoris*), turkey mullein (*Croton setigerus*), redstem filaree (*Erodium cicutarium*), broadleaf filaree (*Erodium botrys*), California poppy (*Eschscholzia californica*), hare barley (*Hordeum leporinum*), horehound (*Marrubium vulgare*), vinegar weed (*Trichostema lanceolatum*), and red clover (*Trifolium pratense*).

Wildlife species observed in this community during field surveys included western whiptail (*Aspidoscelis tigris*), turkey vulture (*Cathartes aura*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), black-tailed jackrabbit (*Lepus californicus*), California ground squirrel (*Otospermophilus beecheyi*), house sparrow (*Passer domesticus*), Pacific gopher snake (*Pituophis catenifer*), western fence lizard (*Sceloporus occidentalis*), western meadowlark (*Sturnella neglecta*), desert cottontail (*Sylvilagus audubonni*), common side-blotched lizard (*Uta stansburiana*), and mourning dove (*Zenaida macroura*).

The biological assessment conducted for the proposed project found that no special-status animal or plant species were present within the proposed project sites or buffer areas. However, suitable habitat for sensitive plant and animal species was observed within both the proposed project sites and buffer areas during biological surveys. No riparian, wetland, stream, vernal pool, or other sensitive community types were observed during the biological assessment.

Direct mortality or injury to common wildlife and plant populations could occur during ground disturbance activities associated with implementation of the proposed project. Small vertebrate, invertebrate, and plant species are particularly prone to impact during project implementation because they are much less to non-mobile, and cannot easily move out of the path of project activities. Other more mobile wildlife species, such as most birds and larger mammals, can avoid project-related activities by moving to other adjacent areas temporarily. Increased human activity and vehicle traffic in the vicinity may disturb some wildlife species. However, common wildlife species have likely become acclimated to on-going ranching and drilling and production activities. Because common wildlife species found in the project area are locally and regionally common, potential impacts to these resources are considered less than significant. Therefore, no avoidance or minimization measures are proposed at this time.

Implementation of the proposed project could potentially impact individual and nesting burrowing owls should they become established within the proposed project sites and buffer areas prior to project implementation. As noted in the attached Biological Assessment this species was not observed during biological surveys. Impacts to this species could occur through crushing by construction equipment during the construction of the proposed project sites and the proposed access roads. Actively nesting burrowing owls could also be affected due to noise and vibration from project activities if nests are located closer than 500 meters to the proposed project sites and proposed access roads; project related noise and vibration could cause the abandonment of active nest sites. However, in the unlikely event that burrowing owls become established in a project site or buffer area in the future, measures included as recommendations

in the attached biological assessment report will be implemented as mitigation measures.

No evidence of San Joaquin kit fox or American badgers, or any potential/known burrows was observed within areas proposed for project activities during biological surveys. However, San Joaquin kit foxes and American badgers have the potential to become established in the proposed project sites and buffer areas prior to project implementation. Implementation of the proposed project could potentially result in significant impacts on individual American badgers and San Joaquin kit foxes should they take up residence in the proposed project sites and buffer areas prior to project implementation. Impacts to these species would likely occur through one of the following ways:

- Through crushing or injury of individual San Joaquin kit foxes or American badgers if they are present within proposed project work areas during project implementation. This could result in direct mortality to live individuals or small populations of these species.
- Through the destruction of burrows if they are excavated by San Joaquin kit foxes or American badgers within disturbance areas prior to proposed project implementation. As stated previously, no potential or known dens were identified within proposed disturbance areas or buffer areas during biological surveys. No signs were observed that would indicate the presence of this species within the proposed project sites or buffer areas.
- Through visual, noise, and vibration impacts. If San Joaquin kit foxes or American badgers become established in burrows adjacent to the proposed project sites, the presence of construction personnel, and the noise and vibration caused by construction activities could lead to the abandonment of actively used burrows/dens. As discussed previously, no potential or known burrows were identified within the proposed project sites and buffer areas. No “signs” (tracks, scats, active digging, etc.) of either species were documented. Proposed project activities could cause the abandonment of occupied burrows if they become established prior to project implementation.

Impacts to American badgers and San Joaquin kit foxes and their potential burrows/dens would be considered a potentially significant impact. However, in the unlikely event that American badgers and San Joaquin kit foxes become established in a project site or buffer area in the future, measures included as recommendations in the attached biological assessment report will be implemented as mitigation measures.

Implementation of the proposed project has the potential to impact Tipton kangaroo rat, Tulare grasshopper mice, and San Joaquin pocket mice by causing direct mortality of individuals of these species by crushing due to use of construction equipment. Individuals of this species could also be crushed or buried in potential burrows within the proposed project sites and buffer areas. Potential burrows (California ground squirrel burrows) were observed throughout the proposed project sites and buffer areas during biological surveys. These burrows could provide potential refuge burrows for these species. It should be noted that no evidence was observed of any of these species presence during biological surveys, and these species are expected to be absent from the proposed project sites and buffer areas. However, in the unlikely event that these

species become established in a project site or buffer area in the future, measures included as recommendations in the attached biological assessment report will be implemented as mitigation measures.

BNLL are not expected to be impacted by the proposed project. Potential habitat for these species was observed in annual grassland habitat within the proposed project sites and buffer areas during biological surveys. Protocol-level biological surveys were conducted within these areas; however, no BNLL were observed during these surveys. Therefore, this species is expected to be absent from the proposed project sites and buffer areas, and no impacts to this species are anticipated as a result of proposed project implementation.

Traffic, consisting predominantly of ranching and drilling and production vehicles and equipment within the project area is moderate. A short-term increase in vehicle traffic is anticipated during project implementation and less so after project completion. This will result in a short-term increase in associated noise, which may cause temporary disturbance to wildlife species. More tolerant species may adapt to and even take advantage of close human contact. Increased vehicular traffic could cause direct mortality to these species or impede normal activities such as dispersal (Luckenbach 1975, Weinstein 1978). Species intolerant of human activities may use the project sites less when humans are regularly present in the area (Bushnel 1978, Lee and Griffith 1977). Those species observed at or near the project sites appear to have acclimated to ongoing activities.

Direct mortality or injury to sensitive animal populations could occur if earth-moving activities are not confined to approved construction areas, access roads, and staging areas (assuming that sensitive animal populations are established in the construction zone during project implementation).

The project would not interfere with movements of wildlife species or with established native resident or migratory wildlife corridors. Native resident and/or migratory fish and known native wildlife nursery sites are not present within the proposed project sites or buffer areas.

**IVa.** The biological assessment found no sensitive plant or animal species present within the proposed project sites, proposed access roads, or the buffers of these areas. However, suitable habitat for sensitive plant and animal species was observed within both the project sites and buffer areas. Additionally, special-status species and their habitat have been documented in the areas surrounding the site (see discussion of sensitive animal and plant species above). Those species observed at or near the proposed project site or buffers of the proposed project sites appear to have acclimated to ongoing activities. To ensure there are no impacts to sensitive plants or sensitive animal species, Naftex will implement measures that were included in the biological assessment report as mitigation measures.

**IVb.** No riparian, wetland, stream, vernal pool, or other sensitive community types were observed within the proposed project sites, proposed access roads, or the buffers of these areas. To ensure there are no impacts to sensitive plants or sensitive animal species, Naftex will implement measures that were included in the biological

assessment report as mitigation measures. Therefore, the proposed project would have a less than significant impact on sensitive natural communities.

- IVc.** No federally protected wetland habitat was observed within the footprint of the proposed project sites, proposed access roads, or the buffers of these areas during the biological assessment. Therefore, the proposed project would not have any substantial adverse effect on federally protected wetlands.
- IVd.** The proposed project would not interfere with movement of any wildlife species or with established native resident or migratory wildlife corridors. Native resident and/or migratory fish and known native wildlife nursery sites are not present within the proposed project sites, proposed access roads, or the buffers of these areas.
- IVe.** The project, as proposed, would not conflict with any local policies or ordinances protecting biological resources or local tree preservation policies/ordinances. No native trees are present within the proposed project sites, proposed access roads, or the buffers of these areas. The project will be in compliance with applicable policies and ordinances. No impacts are anticipated. As discussed above, land uses of this type (oil well drilling) are allowed if appropriate mitigation measures are implemented during project implementation, and applicable agencies are consulted.
- IVf.** There are no adopted Habitat Conservation Plans, Natural Community Conservation Plans or other approved local, regional, or state habitat conservation plans in the project area. No conflict is anticipated with any conservation plans.

**Conclusion:** No sensitive plant or animal species were present within the proposed project sites or proposed access roads or the buffers of the proposed project sites and access roads; however, suitable habitat for sensitive plant and animal species was observed within both the project sites and buffer areas. Measures included in the biological assessment report will be implemented as mitigation measures to reduce potential impacts to biological resources to a level of less than significant.

**Mitigation Measures:** In order to reduce potential impacts to biological resources to a less than significant level, the following mitigation measures will be implemented:

Biological 1 - As close to beginning of construction as possible, but not more than 14 days prior to construction, a qualified biologist shall conduct a final pre-construction survey of the construction zone to insure that no special-status wildlife species have recently occupied the proposed project sites. A qualified biologist shall be present immediately prior to construction activities that have potential to impact sensitive species (i.e., well site preparation, access road grading, etc.) to identify and protect potentially sensitive resources.

Biological 2 - Proposed project sites boundaries shall be clearly delineated by stakes, flagging and /or rope or cord to minimize inadvertent degradation or loss of adjacent habitat during construction and drilling operations. Staff and/or its contractors shall post signs

and/or place fence around the sites to restrict access of vehicles and equipment unrelated to construction, drilling, and completion operations.

Biological 3 - A qualified biologist monitor will be present during initial ground disturbance and site construction activities.

Biological 4 - If San Joaquin kit foxes become established within the proposed project sites or buffer areas prior to project implementation, Naftex will implement the measures contained in the USFWS's "Standardized recommendations for protection of the San Joaquin kit fox prior to or during ground disturbance" (USFWS 2011). Naftex will implement the following measures:

- a) If kit fox dens have become established within 200 feet of a construction area prior to project implementation that may be indirectly impacted by construction activities, exclusion zones shall be established prior to construction by a qualified biologist and dens shall not be disturbed in any way. Exclusion zone fencing should include untreated wood particle-board, silt fencing, orange construction fencing or other fencing as approved by the USFWS and CDFW<sup>1</sup>. Exclusion zones shall be roughly circular with a radius of the following distances measured outward from entrance; potential den 50 feet, and known den 100 feet. Fencing must contain openings for kit fox ingress/egress and keeps humans and equipment out. If a natal/pupping den is discovered within a project site or within 200 feet of the project site, the USFWS and CDFW shall be immediately notified and under no circumstances should the den be disturbed or destroyed without prior authorization. If the preconstruction survey reveals an active natal pupping or new information, the project applicant should contact the USFWS and CDFW immediately to obtain the necessary take authorization/permit. If the take authorization/permit has already been issued, then the biologist may proceed with den destruction within the project boundary, except natal/pupping den which may not be destroyed while occupied. A take authorization/permit is required to destroy these dens even after they are vacated. Protective exclusion zones can be placed around all known and potential dens which occur outside the project footprint.
- b) San Joaquin Kit fox exclusion zone barriers shall be maintained until all construction and drilling activities have been completed, and then removed. If specified exclusion zones cannot be observed for any reason, USFWS and CDFW shall be contacted for guidance prior to ground disturbing activities at or near the subject den. In the event that USFWS and CDFW concur that an occupied San Joaquin kit fox den would be unavoidably destroyed by a planned project action, procedures detailed in the USFWS Standardized Recommendations for protection of the San Joaquin Kit Fox (USFWS 2011) shall be implemented. Den excavation shall be undertaken only by a qualified biologist pursuant to USFWS and CDFW authorization and direction for excavation of kit fox dens.

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<sup>1</sup> The California Department of Fish and Game (CDFW) changed its name to the California Department of Fish and Wildlife (CDFW) on January 1, 2013.

- c) In the event that a San Joaquin kit fox is injured or killed, the incident shall immediately be reported to the project biologist. The project biologist shall contact CDFW immediately in the case of a dead, injured or entrapped kit fox. The CDFW contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or the CDFW Central Region office at (559) 243-4014. The USFWS should be contacted at Endangered Species Division, (916) 414-6620 or (916) 414-6600. The USFWS and CDFW shall be notified in writing within three (3) working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, 2800 Cottage Way, Suite W2605, Sacramento, California 95825-1846. The CDFW contact is the Central Region office (559) 243-4014. New sightings of kit fox shall be reported to the CNDDDB. A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed should also be provided to the USFWS as well.
- d) Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4 inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe should not be moved until the USFWS and CDFW has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.
- e) Limited destruction of kit fox dens may be allowed, if avoidance is not a reasonable alternative, provided the following procedures are observed. Destruction of any known or natal/pupping kit fox den requires take authorization/permit from the USFWS and CDFW. Destruction of the den should be accomplished by careful excavation until it is certain that no kit foxes are inside. The den should be fully excavated, filled with dirt and compacted to ensure that kit foxes cannot reenter or use the den during the construction period. If at any point during excavation, a kit fox is discovered inside the den, the excavation activity shall cease immediately and monitoring of the den as described above should be resumed. Destruction of the den may be completed when in the judgment of the biologist, the animal has escaped, without further disturbance, from the partially destroyed den. Natal or pupping dens which are occupied cannot be destroyed until the pups and adults have vacated and then only after consultation with the USFWS and CDFW. Known dens occurring within the footprint of the activity must be monitored for three (3) days with tracking medium or an infra-red beam camera to determine the current use. If no kit fox activity is observed during this period, the den should be destroyed immediately to preclude subsequent use. If kit fox activity is observed at the den during this period, the den should be monitored for at least five (5) consecutive days from the time of the observation to allow any resident animal to move to another den during its normal

activity. Use of the den can be discouraged during this period by partially plugging its entrances(s) with soil in such a manner that any resident animal can escape easily. Only when the den is determined to be unoccupied may the den be excavated under the direction of the biologist. If the animal is still present after five (5) or more consecutive days of plugging and monitoring, the den may have to be excavated when, in the judgment of a biologist, it is temporarily vacant, for example during the animal's normal foraging activities. The USFWS and CDFW encourage hand excavation, but realize that soil conditions may necessitate the use of excavating equipment. However, extreme caution must be exercised. For potential dens, if a take authorization/permit has been obtained, den destruction may proceed without monitoring, unless other restrictions were issued with the take authorization/permit. If no take authorization/permit has been issued, then potential dens should be monitored as if they were known dens. If any den was considered to be a potential den, but is later determined during monitoring or destruction to be currently, or previously used by kit fox (e.g., if kit fox sign is found inside), then all construction activities shall cease and the USFWS and CDFW shall be notified immediately.

Biological 5 - The burrowing owl nesting season begins as early as February 1 and continues through August 31. If burrowing owls are located or become established within the proposed project sites or buffer areas at the time of the final pre-activity biological survey and are using burrows within the project sites or buffer areas, a qualified biologist will consult with CDFW; the following measures shall be implemented:

- (a) Naftex will follow recommendations included in CDFW's *Staff Report on Burrowing Owl Mitigation* (CDFW 2012a) including avoidance of occupied burrows by implementation of a no-construction buffer zone of a minimum distance of 500 meters, unless a qualified biologist approved by CDFW verifies through non-invasive methods that either: 1) the birds have not begun egg laying and incubation; or 2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.
- (b) On-site passive relocation of burrowing owls should be implemented if owls are using the burrows after August 31. Passive relocation is defined as encouraging owls to move from occupied burrows to alternate natural or artificial burrows that are beyond 150 feet from the impact zone and that are within or contiguous to a minimum of 6.5 acres of foraging habitat for each pair of relocated owls. Relocation of owls should only be implemented during the non-breeding season.
- (c) Owls should be excluded from burrows in the immediate impact zone and within a 150 feet buffer zone by installing one-way doors in burrow entrances. One-way doors should be left in place 48 hours to insure owls have left the burrow before excavation. One alternate natural or artificial burrow should be provided for each burrow that will be excavated in the project impact zone. The project area should be monitored daily for one week to confirm owl use of alternate burrows before excavating burrows in the immediate impact zone.

(d) The project area shall be monitored daily for one week to confirm owl use of alternate burrows before excavating burrows in the immediate impact zone. Whenever possible, burrows shall be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe or burlap bags shall be inserted into burrow tunnels to prevent tunnel collapse while soil is excavated around that portion of a tunnel.

Biological 6 – Suitable sensitive species small mammal burrows shall be avoided by 50 feet.

Biological 7 - A project representative shall establish restrictions on construction-related traffic to approved construction areas, storage areas, staging and parking areas via signage. Off-road traffic outside of designated project areas shall be prohibited. Project-related traffic shall observe a 15 mph speed limit in all project areas except on County roads and State and federal highways to avoid impacts to special-status wildlife species.

Biological 8 - Project activities during the drilling phase of the proposed project shall be scheduled to avoid evening hours, as feasible, to avoid special-status wildlife species that are active in the nighttime.

Biological 9 - All vehicle operators shall check under vehicles and equipment before moving them if they have remained parked and shut off for 10 minutes or longer.

Biological 10 - Hazardous materials, fuels, lubricants, and solvents that spill accidentally during project-related activities shall be cleaned up and removed from the project sites as soon as possible according to applicable federal, state and local regulations.

Biological 11 - All equipment storage and parking during site development, drilling, and operation shall be confined to the proposed project sites or to previously disturbed off site areas that are not suitable habitat for listed species.

Biological 12 - Environmental Awareness Training shall be presented to all personnel working on the proposed project site. Training shall consist of a brief presentation in which biologists knowledgeable of endangered species biology and legislative protection shall explain endangered species concerns. Training shall include a discussion of special-status plants and sensitive wildlife species. Species biology, habitat needs, status under the Endangered Species Act, and measures being incorporated for the protection of these species and their habitats shall also be discussed.

Biological 13- If wildlife proof barricade fencing is not used at the proposed well sites, all excavated steep-walled holes or trenches in excess of three feet in depth shall be provided with one or more escape ramps constructed of earth fill to prevent entrapment of endangered species or other animals during the construction phase. Ramps shall be located at no greater than 1,000-foot intervals and at not less than 45-degree angles. Trenches shall be inspected for entrapped wildlife each morning prior to onset of construction activities and immediately prior to the end of each working day. Before such holes or trenches are filled they shall be

inspected thoroughly for entrapped animals. Any animals discovered shall be allowed to escape voluntarily without harassment before construction activities resume, or removed from the trench or hole by a qualified biologist and allowed to escape unimpeded.

Biological 14 - All construction pipes, culverts, or similar structures stored at a project site overnight having a diameter of four inches or greater shall be inspected thoroughly for wildlife species before being buried, capped, or otherwise used or moved in any way. Pipes laid in trenches overnight shall be capped. If during construction a wildlife species is discovered inside a pipe, that section of pipe shall not be moved or, if necessary, moved only once to remove it from the path of construction activity, until the wildlife species has escaped.

Biological 15 - All food-related trash items such as wrappers, cans, bottles or food scraps generated during construction or during subsequent stages of the project shall be disposed of only in closed containers and regularly removed from the proposed project sites. Food items may attract wildlife species onto a project site, consequently exposing such animals to increased risk of injury or mortality. No deliberate feeding of wildlife shall be allowed.

Biological 16- To prevent harassment or mortality of wildlife species via predation, or destruction of their dens or nests, no domestic pets shall be permitted on the proposed project sites.

Biological 17 - Use of rodenticides and herbicides on the proposed project sites shall be permitted only as part of a USFWS and CDFW approved management plan unless such use is otherwise approved on a case-by-case basis. This is necessary to prevent primary or secondary poisoning of endangered species using adjacent habitats or depletion of prey upon which sensitive wildlife may depend.

## References:

Robert A. Booher Consulting, *Biological Assessment Naftex Operating Company, Bloemer and Kirschenman Oil Project, Kern County, California* (January 2013)

United State Fish and Wildlife Service, *Standardized recommendation for protection of the San Joaquin kit fox prior to or during ground disturbance*, (USFWS 2011)

California Department of Fish and Wildlife, *Staff Report on Burrowing Owl Mitigation* (CDFW 2012).

California Department of Fish and Wildlife. *Conservation and Mitigation Banks in California Approved by the Department of Fish and Wildlife.*

Website: <http://www.dfg.ca.gov/habcon/conplan/mitbank/catalogue/>

United States Fish and Wildlife Service. *Conservation Plans and Agreements Database.*

Website: [http://ecos.fws.gov/conserv\\_plans/public.jsp](http://ecos.fws.gov/conserv_plans/public.jsp)

United State Fish and Wildlife Service, *Standardized recommendation for protection of the San Joaquin kit fox prior to or during ground disturbance*, (USFWS 2011)

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United States Code. 1918. Migratory Bird Treaty Act. 16 U.S.C. §§ 703–712. Revised August 2006.

**ISSUES**

	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
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**V. CULTURAL RESOURCES**

*Would the project:*

a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	_____	X	_____	_____
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 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	_____	_____

**Discussion:** Brunzell Cultural Resource Consulting (BCR Consulting) conducted cultural resources record and information search of the proposed project sites in June of 2012. BCR Consulting also requested a search of the “Sacred Lands Inventory” maintained by the Native American Heritage Commission (NAHC) for the proposed project sites. BCR Consulting Principal Archaeologist David Brunzell conducted a reconnaissance pedestrian inventory of the proposed project sites on June 11, 2012. During the survey, Mr. Brunzell walked 15-meter transects across the proposed project sites. Rodent back dirt and other natural soil exposures were inspected for cultural remains.

The cultural resources record and information search for the project area was conducted with the Southern San Joaquin Valley Information Center (SSJVIC) of the California Historical Resources Information System at the California State University, Bakersfield and included a review of:

- National Register of Historic Places (Directory of Determinations of Eligibility, California, Office of Historic Preservation, Volumes I and II, 2001);
- California Historical Landmarks (State of California 1996);
- California Points of Historical Interest listing (State of California 1992);
- California Historic Property Data File (State of California 2005);
- Other pertinent historic data on file with BCR Consulting.

The records search revealed that five (5) cultural resource studies were previously conducted, resulting in the recording of one (1) historic-period cultural resource within one mile of the proposed project. These results are summarized in Table 15 below.

BCR Consulting requested a search of the Sacred Lands File maintained by the Native American Heritage Commission (NAHC) on June 6, 2012. The request included a brief project description and location map sent by email to David Singleton of the NAHC. Mr. Singleton performed the Sacred Lands File search, and provided names of potentially interested tribes and individuals to BCR Consulting on June 8, 2012. BCR Consulting then communicated via certified letters and emails to the potentially interested parties on June 8, 2012. The list included Rueben Barrios, Chairperson of the Santa Rosa Rancheria; Katherine Montes-Morgan, Chairperson of the Tejon Indian Tribe; David Laughinghorse Robinson, Kawaiisu Tribe of Tejon Reservation; Neil Peyron, Chairperson of the Tule River Indian Tribe; Ron Wermuth; Robert Robinson, Co-Chairperson of the Kern Valley Indian Council; Delia Dominguez, Chairperson of the Kitanemuk & Yowlumne Tejon Indians; Dr. Donna Begay, Tribal Chairperson of the Tubatulabals of Kern County and Lalo Franco, Cultural Coordinator of the Santa Rosa Tachi Rancheria. BCR Consulting received an email from Ms. Montes Morgan on June 20, 2012. Ms. Montes Morgan stated the Tejon Indian Tribe has no knowledge of cultural resources located within the proposed project and she wishes to be notified of any findings. Any additional responses received would be forwarded to Division if and when they are received.

**Table 15**  
**Records Search Results**

California USGS 7.5 Minute Quadrangle	Archaeological Sites	Built Environmental Resources	Reports
<i>Rio Bravo Ranch, CA (1995)</i>	CA-KER-4740	None	KE-641, 1066, 1726, 1806, 3559
<i>Edison, CA (1992)</i>	None	None	KE-641, 1726, 3559

- Va.** The records search and Native American Consultation did not identify any cultural or historic resources at the proposed project sites. Based on these results, the proposed project is not anticipated to affect any historical resources; however during construction activities cultural or historic resources may be unearthed. Compliance with mitigation measures would reduce the potential impact to a less than significant level.
- Vb.** The records search and Native American Consultation did not identify any cultural or historic resources at the proposed project sites. The proposed project would include notification of personnel prior to ground disturbing activities of the possibility of buried prehistoric or historic cultural deposits. In the unlikely event prehistoric or historical cultural deposits are observed, compliance with mitigation measures would reduce the potential impact to a less than significant level.
- Vc.** The records search and Native American Consultation did not identify any cultural or historic resources at the proposed project sites. The proposed project would include notification of personnel prior to ground disturbing activities of the possibility of buried prehistoric or historic cultural deposits. In the unlikely event prehistoric or historical cultural deposits are observed, compliance with mitigation measures would reduce the potential impact to a less than significant level.

**Vd.** The records search and Native American Consultation did not identify any cultural or historic resources at the proposed project sites. In the unlikely event human remains are encountered, compliance with mitigation measures would reduce the potential impact to a less than significant level.

**Conclusion:** No impact to cultural resources. No cultural or historical resources were identified at the proposed project sites. In the unlikely event that such resources are unearthed during construction activities; the following mitigation measures and compliance with statute and regulations shall reduce potential impacts to cultural resources to a level of less than significant.

**Mitigation Measures:** In order to reduce potential impacts to cultural resources to a less than significant level, the following mitigation measures will be implemented:

Cultural 1 – In the unlikely event archeological resources are identified on a project site, all ground disturbing activities will cease and a qualified archaeologist will be retained by Naftex to assess the significance of any find. The archeologist will have the authority to stop or divert the construction excavation as necessary. The archaeologist will evaluate the find in conformance with section 15064.5 of CEQA. A plan to mitigate any adverse impacts will be prepared by the archaeologist and contain procedures to follow. Work may proceed on the site once evaluation of the find is complete.

Cultural 2 – In the unlikely event paleontological resources are identified on a project site, a qualified paleontologist will be retained by Naftex to assess the significance of any find and will have the authority to stop or divert the construction excavation as necessary. A plan to mitigate any adverse impacts will be prepared by the paleontologist and contain procedures to follow. Work may proceed on the site once evaluation of the find is complete.

Cultural 3 – In the unlikely event human remains are discovered during construction of a project site, site personnel will contact the County Coroner and stop work as required by Public Resources Code §5097.98-99 and Health and Safety Code §7050.5. If the remains are determined to be Native American, the County Coroner will notify the NAHC in accordance with PRC §5097.98. Naftex shall, in consultation with the identified descendants of the remains and/or NAHC, identify the appropriate measures for treatment or disposition of the remains.

**References:**

California Public Resources Code 5097.98-99, 15064.5

California Health and Safety Code §7050.5

BCR Consulting, Cultural Resources Assessment Report, June 2012

**ISSUES**

	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
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**VI. GEOLOGY AND SOILS**

*Would the project:*

a.	Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i.	Landslides?	_____	_____	_____	X
ii.	Strong seismic ground shaking?	_____	_____	_____	X
iii.	Seismic-related ground failure, including liquefaction?	_____	_____	_____	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 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 (1194), creating substantial risks to life or property?	_____	_____	_____	X
e.	Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	_____	_____	_____	X

**Discussion:** The proposed project sites consist of non-native grassland habitat and are located in the Breckenridge Bluffs area. Topography at the proposed project sites is relatively flat with gently sloping areas. Based on the observations from the site visit conducted by Robert A. Booher Consulting on April 17, 19, 20 and 21, May 28, 29, 30 and 31, June 25, 26, 27 and 28, August 30, and September 4, 5, 6 and 7, 2012, the slope at the proposed project sites average from 2 to 6 percent. No buildings or structures are currently present on the proposed project sites. The proposed project would not involve the construction of any permanent structures. The proposed wells on constructed level surfaces would be drilled to very shallow depths of approximately 940 feet to 990 feet (Santa Margarita Formation).

**Regional Geological Setting**

The proposed project is located in the Great Valley Geomorphic Province of California, which is an alluvial plain approximately 50 miles wide and 400 miles long. The Great Valley comprises

the Sacramento Valley in the north and the San Joaquin Valley in the south. The alluvial plain is composed of thousands of feet of sedimentary deposits that have undergone periods of subsidence and uplifting over millions of years. Most of the surface of the Great Valley is covered with Recent (Holocene, i.e., 10,000 years before present to present day) and Pleistocene (i.e., 10,000 to 1,800,000 years before present) alluvium. This alluvium is composed of sediments from the Sierra Nevada to the east and the Coast Range to the west that were carried by water and deposited on the valley floor. Siltstone, claystone, and sandstone are the primary types of sedimentary deposits. Surface elevations within the Great Valley generally range from several feet below mean sea level (msl) to more than 1,000 feet above msl.

The General Soil Map for Kern County Northeastern Part (2007) indicates that the general project area is located in the Chanac-Plieto area with very deep, gently sloping to very steep well drained soils the formed from alluvium derived from mixed rocks.

According to United States Department of Agriculture Natural Resource Conservation Service mapping, the soil at the proposed project area is identified as Soil Unit 185 – Brecken-Cuyama-Plieto which are deep, well drained gravely sandy loams on alluvial fans, stream terraces, and fan remnants. Available water capacity is high and runoff capacity is high. The hazard of water erosion is low.

The proposed project sites are in a seismically active region subject to future seismic shaking during earthquakes generated by active faults. There are unnamed faults (1952 earthquake fractures) in the project area (See Figure 7-Fault Map). The San Andreas Fault Cholame-Carrizo section is located approximately 53.0 miles west of the proposed project sites. It is a right-lateral strike slip fault that extends over 700 miles from the Gulf of California to Cape Mendocino in northern California. Several historic earthquakes on the San Andreas Fault zone have produced significant ground shaking in the northwestern areas of Kern County. The most notable examples is the January 9, 1857 Fort Tejon Earthquake, one of the greatest earthquakes ever recorded in the United States. The Fort Tejon Earthquake produced a surface rupture over 217 miles in length along the San Andreas Fault from Cholame on the north to the Cajon Pass area on the south. The epicenter of the Fort Tejon Earthquake was located approximately 35 miles south of the proposed project sites. This earthquake which was estimated to be near magnitude 8 produced an average slip of 15 feet and a maximum slip of 30 feet in the Carrizo Plain area. Strong shaking caused by the earthquake was reported to have lasted at least one minute. Accordingly, the proposed project would be subject to future seismic shaking and strong ground motion resulting from seismic activity along local and more distant active faults.

The proposed project sites are included within the regulatory map boundaries of an “Earthquake Fault Zone,” as defined by the State of California in the Alquist-Priolo Earthquake Fault Zoning Act. Un-named 1952 earthquake fractures are located in the Rio Bravo Ranch Quadrangle near the proposed project sites. The regulatory maps do not indicate the presence of “landslide or liquefaction zones in the project area.

Soil liquefaction is a phenomenon which can potentially occur during periods of oscillatory ground motion caused by an event such as an earthquake. The pore water in a loose, saturated granular soil and some fine grained soils increases to the point where the effective stress in the soil is zero and the soil loses a portion of its shear strength (initial liquefaction). Structures

founded on or above potentially liquefiable soils may experience bearing capacity failures, vertical settlement (both total and differential) and lateral displacement (due to lateral spreading of the ground). The factors known to influence liquefaction potential includes soil characteristics (particle size, distribution, plasticity, water content), relative density, presence or absence of groundwater, stress tensor (effective confining stresses, shear stress), and the intensity and duration of the seismic ground shaking. The granular soils most susceptible are loose, saturated sands and non-plastic silty soils located below the water table.

The potential for liquefaction at the proposed project sites are considered to be low. This is due to the absence of near surface groundwater and the generally dense subsurface materials. The California Department of Water Resources Water Data Library reported unconfined groundwater contour elevation in Well 29S29E34C001M approximately 1.2 miles west of the project area to be approximately 320-325 feet in 2009. The proposed project sites will not include any habitable structures that would expose occupants to liquefaction potential. Therefore, the impacts related to seismic-related ground failure are considered to be less than significant.

The proposed project sites are located in a relatively flat to moderate sloping topographic area, where landslides would not be expected to occur. Therefore, impacts related to landslides are not expected to occur or pose a hazard to the proposed project sites.

The topography for the proposed project sites is classified as relatively flat to moderate sloping. Each of the proposed project sites is relatively small in size, approximately 0.55 acres, and minimal grading will be required. A drainage plan will also be prepared for the proposed sites to ensure that the existing drainage patterns of the sites and areas are maintained and would not result in erosion or loss of topsoil. Therefore, these impacts are considered less than significant.

**VIa.** The proposed project would not expose people or structures to potential adverse effects from landslides as the project topography is relatively flat and there are no inhabited structures that would be impacted by strong seismic ground shaking, or seismic-related ground failure (including liquefaction and lateral spreading).

As described in the Regional Geological Setting Section above, there are unnamed faults (1952 earthquake fractures) in the project area (See Figure 7-Fault Map). The San Andreas Fault Cholame-Carrizo section is located approximately 53.0 miles west of the proposed project sites. The proposed project sites are included within the regulatory map boundaries of an "Earthquake Fault Zone," as defined by the State of California in the Alquist-Priolo Earthquake Fault Zoning Act. Un-named 1952 earthquake fractures are located in the Rio Bravo Ranch Quadrangle near the proposed project sites. The regulatory maps do not indicate the presence of "landslide or liquefaction zones in the project area.

Furthermore, the proposed drill rig has a low center of gravity with heavy base sub-structures that up to smaller top member. This design, with low center of gravity, along with support cables used to additionally stabilize the tower, effectively allows the rig to with stand shaking and movement without falling over.

Project oil field equipment is designed to meet American Petroleum Institute (API) Standards as well the California Building Code (CBC) in particular Title 24, Part 2, Chapter 17. Section 1708 details structural testing for seismic resistance and seismic design category as determined in CBC Section 1613. Section 1708.4 outlines specific design compliance by referring to American Society of Civil Engineers (ASCE) ASCE 7 Chapter 13 (13.2.1 & 13.2.2) specifications and recommendations. Both API and ASCE have adopted the same recommendations regarding seismic design.

Kern County Building Code of Regulations provides oil field permit exemptions under section 17.08.060 providing compliance with API standards.

Additionally, in the event of an earthquake, the emergency response plan will be implemented to address potential releases of petroleum, produced water and other fluids. Accordingly, the proposed project will not expose people or structures to potential adverse effects from landslides, strong seismic ground shaking, or seismic-related ground failure (including liquefaction).

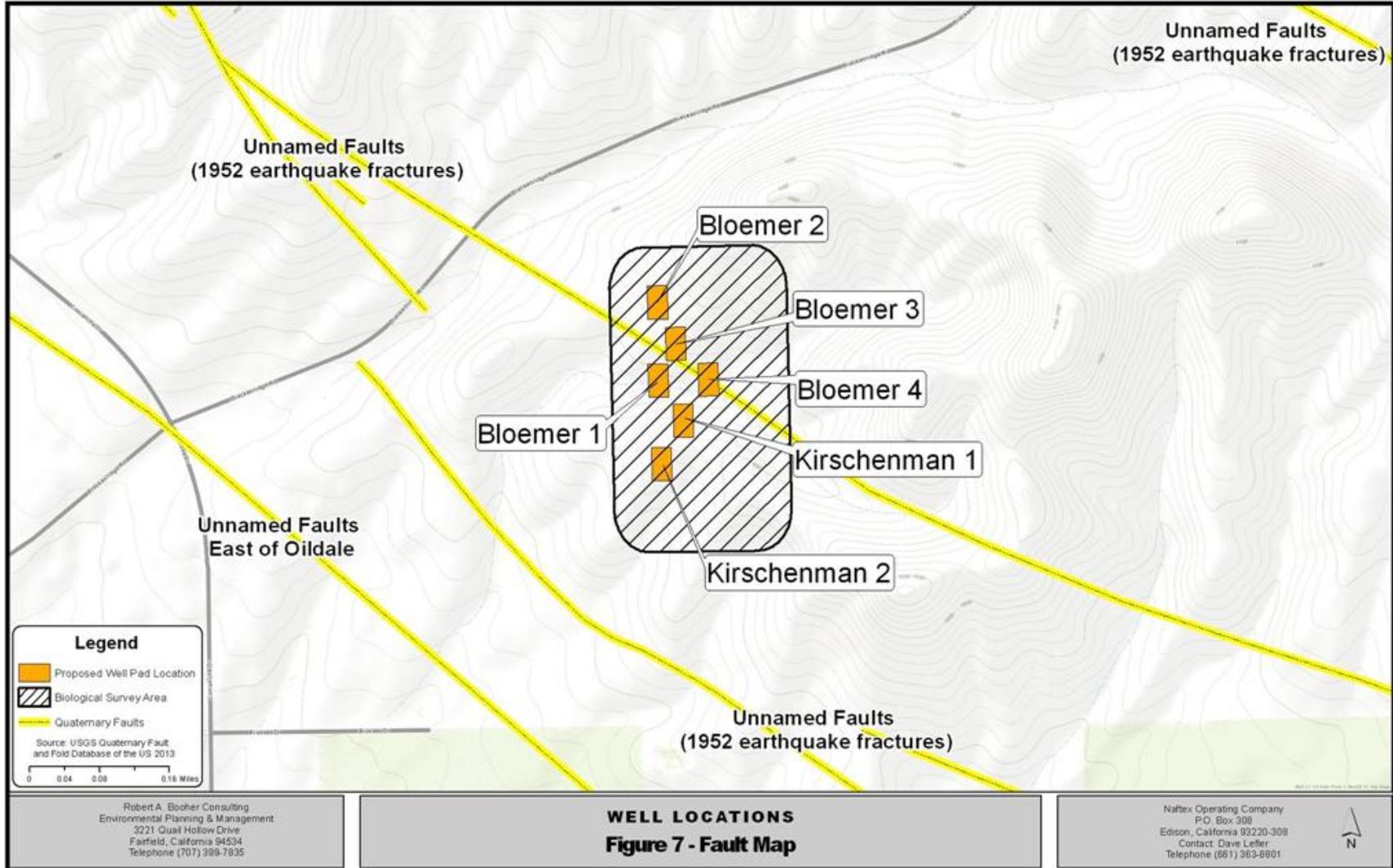
**VIb.** The proposed project will not result in substantial soil erosion or the loss of topsoil. The proposed project sites are relatively flat with gently sloping areas, and the existing drainage patterns will be maintained. No impact is anticipated from soil erosion or loss of topsoil.

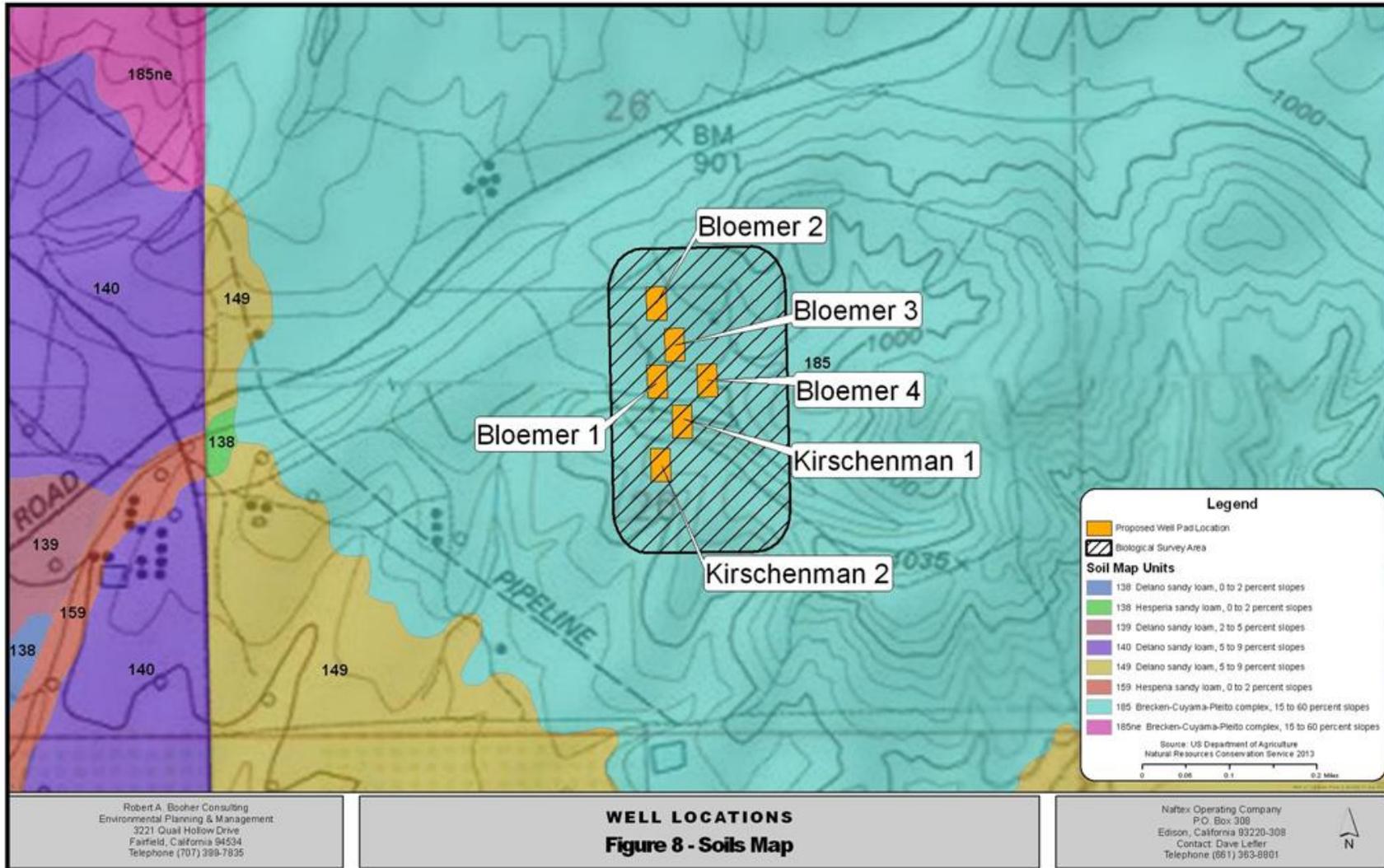
**VIc.** Any potential for subsidence resulting from the proposed project would be either as a result of groundwater overdraft or fluid withdrawal.

Groundwater overdraft subsidence is caused by aquifer-system compaction due to the lowering of ground-water levels by sustained ground-water overdraft. However, water would be supplied from the Naftex Racetrack Water Plant and not a local groundwater source. Accordingly water use during the site preparation and drilling phases will have no impact on subsidence as a result of groundwater overdraft.

Subsidence related to fluid withdrawal in oil operations will not be an issue due to the character and depth of the formation. The proposed wells would be drilled to target the Santa Margarita sandstone formation. Sandstone formations have porosity and permeability that allows fluids to flow through the formation in such a manner that structural stability is maintained. Unlike some areas of the softer, less dense diatomite type deposits, the formation targeted here has structural strength that is not hydration dependent for structural stability. Accordingly, based on the geological formation and target location the wells would have no impact on subsidence due to fluid withdrawal.

Topography in the proposed project area is relatively flat. Additionally, there are no identified landslide or mudslide hazards within the Breckenridge Hills Specific Plan Area. (Ref: adapted from page E-2 the Breckenridge Hills Specific Plan, Kern County, October 9, 1989) No buildings or structures are currently present or proposed





on the any of the proposed project sites. During ongoing production activities, the proposed project sites would be un-manned. Therefore, no impacts are expected.

**VI d.** The proposed project sites are underlain by Soil Unit 185 – Brecken-Cuyama-Plieto which are deep, well drained gravelly sandy loams on alluvial fans, stream terraces, and fan remnants. Available water capacity is high and runoff capacity is high. The hazard of water erosion is low. These soil types consist of non-expansive gravelly sandy loam. Due to the loamy content in the soil along with proper moisture conditioning during compaction activities, these soils are not considered expansive. Therefore, there would be no impacts due to expansive soils.

**VI e.** The proposed project does not involve the construction of any facilities requiring the use of septic tanks or any waste disposal systems. Production water is the only potential wastewater that would be generated during project activities, and production water would be transported by flowlines to Naftex’s Section 26 Tank Farm and will be disposed of in Naftex’s Racetrack 76-27, 77-27 or 86-27 water disposal wells, Division permitted Class II disposal wells. Naftex anticipates that 90 barrels (3,780 gallons) of production water a day would be generated at each of the well sites that are put into production.

**Conclusion:** No impact.

**Mitigation Measures:** No impact identified. No mitigation necessary.

**References:**

Department of Conservation, California Geological Survey, *Probabilistic Seismic Hazards Mapping Ground Motion Page*.

Website: <http://redirect.conservation.ca.gov/cgs/rghm/pshamap/pshamap.asp>

Department of Conservation, California Geological Survey, *Alquist-Priolo Earthquake Fault Zone Maps*.

Website: [http://www.quake.ca.gov/gmaps/ap/ap\\_maps.htm](http://www.quake.ca.gov/gmaps/ap/ap_maps.htm)

Page E-2 the Breckenridge Hills Specific Plan, Kern County, October 9, 1989

Soil Survey of Kern County, Northeastern Part, Natural Resources Conservation Service, USDA

– websites - 1) <http://soildatamart.nrcs.usda.gov/manuscripts/CA666/0/kern.pdf>, and 2)

<http://soildatamart.nrcs.usda.gov/manuscripts/CA666/0/map5.pdf>.

Kern County Planning Department, Lost Hills Solar by NextLight, Notice of Draft Environmental Impact Report, March 2010 -

[http://www.co.kern.ca.us/planning/pdfs/notices/lost\\_hills\\_solar\\_nop.pdf](http://www.co.kern.ca.us/planning/pdfs/notices/lost_hills_solar_nop.pdf)

<http://www.quake.ca.gov/gmaps/WH/regulatorymaps.htm>

[http://gmw.consrv.ca.gov/shmp/download/quad/RIO\\_BRAVO\\_RANCH/maps/RIOBRVO\\_RCH.PDF](http://gmw.consrv.ca.gov/shmp/download/quad/RIO_BRAVO_RANCH/maps/RIOBRVO_RCH.PDF)

<http://www.water.ca.gov/waterdatalibrary/>

[http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/report\\_html.cfm?wellNumber=29S29E34C001M](http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/report_html.cfm?wellNumber=29S29E34C001M)

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

**Discussion:** Global warming refers to an increase in the earth’s average temperature as a result of increased concentration of greenhouse gases (GHG) in the atmosphere. GHGs include any gas that absorbs infrared radiation in the atmosphere. GHGs include water vapor, carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), halogenated fluorocarbons (HCFCs), ozone (O<sub>3</sub>), perfluorinated carbons (PFCs), hydrofluorocarbons (HFCs), and sulfur hexafluoride (SF<sub>6</sub>).

Over the past decades, there is growing evidence of increase temperatures and increased concentrations of GHGs in the atmosphere. In response to the possibility that the increased temperatures are a result of human activity, the California Environmental Protection Agency (CalEPA), California Air Resources Board (CARB) and local governments have enacted regulations aimed at curbing GHG emissions. Several of these regulations are listed below.

- Revisions to the Clean Air Act (USEPA) affecting Title V and Prevention of Significant Deterioration (PSD) Sources (Tailoring Rule)
- Mandatory Reporting of GHG Emissions (CalEPA and CARB)
- CEQA Guidelines (California SB 97)
- Statewide GHG Reductions (California AB-32)

The current project would be exempt from permit requirements under the Title V or PSD programs as the annual emissions of criteria air pollutants are below 100 tons per year. The project would also be exempt from mandatory state and federal reporting since annual emissions are below 25,000 tons per year.

The project is subject to the December 2009 amended CEQA Guidelines Sections 15064 and 15064.4. These sections address the determination of significance of impacts from greenhouse gas emissions from a project as well as cumulative impacts. The updated CEQA Guidelines assert that a project would not have a significant impact either at a project level or cumulatively if the project complies with a previously approved plan or mitigation.

On December 17, 2009, SJVAPCD adopted District Policy for addressing GHG emissions and impacts. This policy was for both the District and other lead agencies when addressing GHG impacts. This policy does not recommend the use numerical thresholds. Instead, it advocates that projects comply with other emission reduction plans under AB 32. Projects complying with such plans are considered to have less than significant impact on global climate change. Under such a scenario, impacts will be considered less than significant individually and cumulatively.

**IIa,b.** RAB Consulting prepared emissions calculations to determine GHGs emitted by the proposed project. GHG emissions were estimated using Road Construction Emissions Model, Version 6.3.2 software, which is recommended by the SJVAPCD for use in calculating air emissions for this type of project. This program determined that CO<sub>2</sub> would be released from the project. In addition to CO<sub>2</sub>, trace amounts of N<sub>2</sub>O and CH<sub>4</sub> would also be released during the fuel combustion process. However, these constituents would contribute less than 1% to the overall GHG budget.

Fugitive emissions from well components such as, tanks, valves, flanges, pumps, etc. are subject to SJVAPCD's Rule 4409. This Rule requires regular inspection and maintenance of well components. The emission rate of fugitive emissions is extremely low. Typically, the emission rates of VOCs are 0.00000005 kg/hour as noted in the EPA guidance leak detection and repair. Available at: <http://www.epa.gov/ttnchie1/efdocs/equiplks.pdf>

GHG emissions for the project were estimated based on lists of equipment for each phase of the project and the corresponding assumptions provided by Naftex. Equipment proposed for use during the proposed project and corresponding assumptions are found in Tables 4, 5, 6, 7, 8 and 9 in Section III, Air Quality.

Table 16 summarizes the tons per year of GHG emissions that could be produced during the site preparation, drilling, completion, production, and plugging and abandonment phases of the proposed project. A total of 319.7 tons of GHGs would be emitted if all wells are completed through all phases of the project.

**Table 16**  
**Summary of Greenhouse Gas Emissions**

Project Phase	CO <sub>2</sub>			CO <sub>2</sub> (e)	
	1 Well (ton/yr)	All Wells (ton/yr)	Ratio <sup>1</sup> CO <sub>2</sub> (e)/CO <sub>2</sub>	1 Well (ton/yr)	All Wells (ton/yr)
Site Preparation	2.50	15	1.0034	2.51	15.1
Drilling Phase	31.6	189.6	1.0034	31.7	190.2
Completion Phase	5.3	31.8	1.0034	5.32	31.9
Installation of Production Equipment	5.2	31.2	1.0034	5.22	31.3
Production Phase	3.2	19.2	1.0034	3.51	19.3
Plugging and Abandonment Phase	5.3	31.8	1.0034	5.32	31.9
<b>Project Totals</b>	<b>53.1</b>	<b>318.6</b>		<b>53.6</b>	<b>319.7</b>

*1 - See Attachment B for calculation of the CO<sub>2</sub>(e)/CO<sub>2</sub> Ratio*

**Significance of GHG Emissions**

Naftex is a private company engaged in drilling and production of oil and gas resources in California. As a company, Naftex is subject to and compliant with Cap and Trade regulations. Cap and Trade is has been adopted in California for reducing GHG emissions from certain industries, such as oil and gas drilling and production.

Compliance with Cap and Trade regulations specifically allow for growth in emissions from individual projects as long as there is an overall reduction in emissions. As a result, emissions of GHG emissions from the current project would be fully mitigated.

**Conclusion:** Impacts resulting from GHG generation will be less than significant.

**Mitigation Measures:** No significant impact identified. No mitigation necessary.

**References:**

San Joaquin Valley Unified Air Pollution Control District, Final Draft *Addressing Greenhouse Gas Emission Impacts Under the California Environmental Quality Act*. (December 2009)  
 Website: <http://www.valleyair.org/programs/CCAP/12-17-09/1%20CCAP%20-%20FINAL%20CEQA%20GHG%20Staff%20Report%20-%20Dec%2017%202009.pdf>

San Joaquin Valley Unified Air Pollution Control District, *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA*, (December 2009)

Website: <http://www.valleyair.org/Programs/CCAP/12-17-09/3%20CCAP%20-%20FINAL%20LU%20Guidance%20-%20Dec%2017%202009.pdf> Gas Emissions under the California Environmental Quality Act”

San Joaquin Valley Unified Air Pollution Control District, *Rule 2280 Portable Equipment Registration*

Website: <http://www.valleyair.org/rules/1ruleslist.htm>

#### EPA Standards for Non-Road Diesel Engines

The engines must comply with federal 40 CFR 1068 requirements. Tier 3 and older engines must comply with 40 CFR 89. Newer engines (Tier 4) must comply with 40 CFR 1039. We note that compliance with these requirements is handled by the engine manufacturer before the engines can be sold in California.

#### CARB Standards

The engines must meet CARB standards as regulated in the California Code of Regulations, Sections 2421 to 2427 of Title 13, Division 3, Chapter 9, Article 4.

<b>ISSUES</b>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>VIII. HAZARDS &amp; HAZARDOUS MATERIALS</b>				
<i>Would the project:</i>				
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 compiled pursuant to Government Code Section 65962.5 and, as a result, would 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

**Discussion:** The proposed project sites are located on annual grassland habitat. Project activities with the exception of production require minimal transportation, use or storage of hazardous materials including fuels, oils, lubricants, hydraulic fluids and solvents used at each of the proposed project sites. All hazardous materials will be transported and stored according to the following applicable federal, state and local regulations:

Federal:

- Clean Water Act
- Resource Conservation and Recovery Act – 40 Code of Federal Regulations (CFR) Parts 240-299
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
- National Oil and Hazardous Substances Pollution Contingency Plan
- Spill Prevention, Control, and Countermeasures Plan – 40 CFR Part 112
- Occupational Safety and Health Standards (Title 29 CFR Parts 1910 and 1926)

State:

- Porter-Cologne Water Quality Control Act (Porter-Cologne) (Cal. Water Code, § 13000 et seq.)
- Hazardous Waste Control Law, California Health and Safety Code Sections 25100-25249
- California Health and Safety Code Sections 25359.60-25395.106 and Sections 25395.110-25395.119

Local:

- Kern County General Plan, Safety Element
- Kern County Hazardous Waste Management Plan
- Kern County Emergency Operations Plan
- Kern County Multi-Hazard Mitigation Plan

Portable tanks and mud pits will be used for mixing and storing drilling fluids. All fluids will be disposed of in accordance with the requirements of the Central Valley Regional Water Quality Control Board (RWQCB). If a reserve pit/sump is used, the use and closure of the reserve pit/sump will be handled in accordance with Title 27, CCR, Section 20090(g), and Regional Board Waiver Resolution No. R5-2008 - 0182.

If economic quantities of oil are discovered, a given well will be completed and production equipment including a well head and API 10 hp electronic motor pumping unit will be installed on site. Flowlines will be installed aboveground adjacent to the proposed new access roads. The proposed flowlines will connect the proposed wells to existing pipeline infrastructure located west of the proposed Bloemer 1 well site. The proposed flowlines will be installed on sleepers to avoid impacts to small mammal burrows. Naftex proposes to paint all production equipment in camouflage or an earthen tone to blend in with the environment and to prevent glare. Naftex estimates that approximately three (3) days would be required for flow line installation activities. Naftex anticipates 10 barrels of oil and 90 barrels of production water will be produced daily from each well. The oil will be transported from the wells through flow lines to Naftex's Section

26 Tank Farm and sold to a local refinery. The production water will be transported to Naftex's Section 26 Tank Farm and will be disposed of in Naftex's Racetrack 76-27, 77-27 or 86-27; Division permitted Class II disposal wells. Each of the production sites will be inspected by Naftex personnel daily.

**VIIIa.** There is potential for accidental releases of hazardous materials during project operations, also including a potential for an accidental release during drilling operations if there were a blowout; however, as required by Division regulations (CCR §1722.2-§1724.10) surface casing will be set, cemented, and blowout prevention equipment will be installed at each of the wellheads and tested to minimize the potential releases associated with blowouts. Potential impacts associated with the accidental release of these materials depend on the quantity and type, the location where it is used, the toxicity or other hazardous characteristics of the material, and whether it is transported, stored, and used in a solid, liquid, or gaseous form. Naftex has an existing Spill Contingency Plan in accordance with CCR § 1772.9 on file with the Division. The Spill Contingency Plan will be amended to include the proposed project sites and a copy of the plan shall be kept on site. The plan discusses methods to avoid and/or minimize impacts in the event of a release. The purpose of the plan is to ensure that adequate containment will be provided to control accidental spills, that adequate spill response equipment and absorbents will be readily available, and that personnel will be properly trained in how to control and clean up any spills.

Due to implementation of the standard preventive and mitigation measures presented below, the proposed project will not impact the public or the environment through the routine transport, use, or disposal of hazardous materials.

**VIIIb.** See VIIIa.

**VIIIc.** No existing or proposed schools are located within one-quarter mile of the proposed project sites. The nearest school to the proposed project sites is the Edison Middle School located at 721 South Edison Road, Bakersfield, California 93307 and is approximately 3.5 miles southwest of the proposed project sites. Therefore, the proposed project would not have the potential to emit hazardous emissions or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. There is no impact.

**VIII d.** The proposed project sites are not located on listed hazardous material sites compiled pursuant to Government Code section 65962.5. Therefore, the proposed project would not create a significant hazard to the public or environment.

**VIII e, f.** The nearest public airport is the Bakersfield Municipal Airport (2000 S Union Ave., Bakersfield, CA 93307) located approximately 9.8 miles southwest of the proposed project sites. Therefore, the proposed project sites would not result in a safety hazards for people residing or working in the project area related to public airport activities.

- VIIIg.** Implementation of the proposed project will not impair or physically interfere with the implementation of any existing and/or adopted emergency response plans or emergency evacuation plans for the local area.
- VIIIh.** The proposed project is not located in a wildlands area or adjacent to urbanized areas or where residences are intermixed with wildlands. There are no existing structures in the project areas. No permanent structures are proposed as part of the project. Therefore, the proposed project would not increase fire risk in wildland areas. Fire protection is provided by the Kern County Fire Department and its Fire Station No. 45 located at 11809 Edison Highway is approximately 3 miles from the proposed project sites.

**Conclusion:** Mitigation measures shall reduce any potential impacts relative to hazards and hazardous materials to a level of less than significant.

**Mitigation Measures:** The following mitigation measures will be implemented to avoid and/or minimize potential impacts resulting from hazards or hazardous materials:

Hazards 1 - All hazardous materials such as diesel fuel shall be stored according to the California Code of Regulations (CCR) Title 22, 23, 26 & 27 and California Fire Codes (CFR) Title 24 and Kern County hazardous materials ordinance and Material Safety Data Sheets shall be on the site. Waste materials shall be managed properly in accordance with requirements that comply with, or are authorized by, the Code of Federal Regulations (40 CFR) and refined in California through CCR, Title 14, 22, 23, 26 & 27. Training shall be provided to all personnel involved in handling of hazardous materials/waste.

Hazards 2 - In order to minimize potential impacts associated with a blowout, Naftex shall comply with CCR Title 14, Division 2, Chapter 4, Articles 3 and 4, specifically Article 4, 1941-1942. Requirements for well casing design and blowout prevention equipment are regulated by the Division. Division engineers shall be notified for required tests and other operations.

Hazards 3 - All above ground storage tanks will be located within a bermed area which provides a storage volume of at least 110% of the storage volume of the largest tank. Daily inspections of the above ground storage tanks will be conducted and an inspection log will be maintained for review by regulatory agency personnel. The inspection log will also document corrective actions taken, if necessary.

Hazards 4 - Fluid disposal shall follow RWQCB regulations (CCR Title 23 Waters).

Hazards 5 - If project development uncovers any previously unknown oil, gas, or injection wells, the Division shall be notified. If unrecorded wells are uncovered during excavation or grading, remedial plugging operations may be required.

**References:**

Central Valley Regional Water Quality Control Board, *Laws and Regulations*

Website: [http://www.waterboards.ca.gov/centralvalley/laws\\_regulations/](http://www.waterboards.ca.gov/centralvalley/laws_regulations/)

California State Water Resources Control Board, *Geotracker*

Website: <http://geotracker.waterboards.ca.gov>

California Department of Forestry and Fire Protection, *Kern County FHSZ Maps*

Website: [http://www.fire.ca.gov/fire\\_prevention/fhsz\\_maps/fhsz\\_maps\\_kern.php](http://www.fire.ca.gov/fire_prevention/fhsz_maps/fhsz_maps_kern.php) and

California Department of Conservation, Division of Oil, Gas, and Geothermal Resources,  
*Publications: Laws and Regulations*

Website: [http://www.conservation.ca.gov/dog/pubs\\_stats/Pages/law\\_regulations.aspx](http://www.conservation.ca.gov/dog/pubs_stats/Pages/law_regulations.aspx)

California Code Regulations

Website: <http://www.oal.ca.gov/ccr.htm>

**ISSUES**

*Potentially Significant Impact*      *Less Than Significant with Mitigation Incorporated*      *Less Than Significant Impact*      *No Impact*

**IX. HYDROLOGY AND WATER QUALITY**

*Would the project:*

a. Violate any water quality standards or waste discharge standards?	_____	_____	_____	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 stormwater 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?	_____	_____	_____	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 mudflow?	_____	_____	_____	X

**Discussion:** The proposed project sites are located within the Kern Bluffs Watershed. (Ref: California Department of Conservation Watershed Portal- Kern Bluffs) Implementation of the proposed project would not alter current drainage patterns in the project area. It is anticipated that approximately 3,500 barrels (147,000 gallons) of treated production water from the Naftex Racetrack Water Plant would be needed for the drilling and site construction operations of each well. All water required during implementation of drilling would be imported to the proposed project sites from Naftex's Racetrack Water Plant which has existing water entitlements.

**IXa.** The project area does not conflict with applicable water quality and waste discharge standards relating to hydrology and water quality. The project would comply with all requirements established by the Central Valley Regional Water Quality Control Board (CVRWQCB). CVRWQCB Waiver Resolution No. R5-2008-0182 waives the requirement to file a Report of Waste Discharge and/or issue Waste Discharge Requirements for the temporary discharge of drilling mud to a sump (pit). Resolution No. R5-2008-0182 includes several conditions such as a sump design must assure no overflow; drilling mud can remain in a sump only if it can be demonstrated to be non-hazardous; drilling mud in a sump must be dried by evaporation or pumping; and, the site must be restored to pre-sump conditions and the area shall be restored within 60 days of completion of a well. The solids that may accumulate in the mud pits/tanks can be reused if it is demonstrated that they are nonhazardous. If any waste tests positive as a hazardous waste it would be disposed of at the Clean Harbors Buttonwillow, LLC, located at 2500 West Lokern Road, Buttonwillow, CA, 93206. The Clean Harbors Buttonwillow, LLC a licensed Class 1, 2 and 3 disposal site. This facility is permitted to receive up to 10,482 tons/day (*Active Landfills Profile*, [www.calrecycle.ca.gov](http://www.calrecycle.ca.gov)).

As previously stated, the documented depth in the area to the first encountered groundwater is 320 feet to 325 feet. As a result, groundwater is not expected to be encountered during site preparation or other project surface activity and operations. However, in the unlikely event that shallow ground water is encountered while constructing the sump, drilling mud shall be contained in aboveground tanks. The project will not cause direct or indirect wastewater discharges that will result in an exposure to levels of hazardous materials that will adversely affect human health, wildlife or plant species. The project would comply with all water quality and waste discharge standards established by CVRWQCB.

**IXb.** Naftex shall follow all applicable statutes and regulations; therefore, the project would not degrade groundwater quality or interfere with groundwater recharge, or deplete groundwater resources in a manner that would cause water-related hazards such as subsidence. Water would be purchased from a local water source and no new entitlements will be required. In compliance with Division regulations, California Code of Regulations (CCR) Title 14 Division 2, Chapter 4, Articles 3, Naftex shall install and cement surface casing to prevent blowouts and contamination of fresh water aquifers. Division regulations specify that the base of fresh water must be protected with cemented casing to prevent any contamination from migrating fluids

encountered in oil and gas zones. The regulations also specify that oil and gas zones must be protected with cemented casing to prevent any contamination from infiltrating water. Division engineers review the drilling and completion operations to ensure these requirements have been met. As previously stated, the documented depth in the area to the first encountered groundwater is 320 feet to 325 feet. Produced water generated during the production phase of the project will be transported by flowlines to Naftex's Section 26 Tank Farm and will be disposed of in Naftex's Racetrack 76-27, 77-27 or 86-27 water disposal wells, Division permitted Class II disposal wells. Therefore, the project would not be expected to 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.

- IXc,d.** Even though the total area of disturbance exceeds 1.0 acre and compliance with the General Permit to Discharge Storm Water with Construction Activity (Order No. 2009-0009-DWQ) is required; the project would not alter the current drainage pattern of the proposed project in a manner that would promote flooding, erosion or siltation either on or off the sites. The project would maintain existing agricultural drainage patterns. The project would create minimal runoff as the drill sites are approximately 0.55 acres in size and are not completely impervious. However, as there are no existing or planned stormwater drainage systems, the capacity of these systems cannot be exceeded.
- IXe.** There are no existing or planned stormwater drainage systems; therefore the capacity of these systems cannot be exceeded. The total project area of disturbance is greater than one (1) acre. The calculated rainfall erosivity factor (R-factor) for the proposed project is 0.34. As the calculated R-factor is less than 5, Naftex will be required to submit a Notice Of Intent (NOI) to the State Water Resources Control Board for a erosivity waiver certification for the proposed project. Accordingly, Naftex will not be required to prepare and submit a Storm Water Pollution Prevention Plan to comply with the terms of the General Permit to Discharge Storm Water with Construction Activity (Order No. 2009-0009 DWQ).
- IXf.** See IXa-e.
- IXg.** The proposed project sites are not located within the 100 year or 500 year flood zone plain. (Ref. Kern County Flood Plain Dam Inundation Areas - Kern Master Environmental Resource 2004 and Maps ID 06020C186E and 06029C1865E (Ref: [www.fema.gov](http://www.fema.gov))). There are no housing structures located in the proposed project sites.
- IXh.** The proposed project sites are not located within the 100 year flood zone (Maps ID 06020C186E and 06029C1865E, [www.fema.gov](http://www.fema.gov)). There are no permanent structures proposed. Portable drilling equipment would be temporarily located on the proposed

project sites during the drilling phase and a well head and API 10 hp electronic motor pumping unit would be installed for the production phase. Accordingly, there are no structures which would impede or redirect flood flows.

- IXi.** The proposed project sites are not located within the 100 year flood zone. The closest dam to the proposed project sites is the Brite Valley Dam and it is located 25 miles to the southeast of the proposed project sites. Based upon the result of site visits conducted by Robert A. Booher Consulting on April 17, 19, 20 and 21, May 28, 29, 30 and 31, June 25, 26, 27 and 28, August 30, and September 4, 5, 6 and 7, 2012, there were no levees observed within two miles of the proposed project site. Accordingly, the project as proposed will not 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.
- IXj.** The project area is relatively flat with gently sloping areas. The proposed project sites will be flat when constructed eliminating the possibility of mudflow. No evidence of past mudflows was observed within or adjacent to the proposed project area.

**Conclusion:** Mitigation measures shall reduce any potential impacts relative to hydrology and water quality to a level of less than significant.

**Mitigation Measure:** The following mitigation measure will be implemented to reduce any potential impacts relative to hydrology and water quality:

Hydrology 1 – Naftex will provide a copy of the submitted NOI and verification of an approved erosivity waiver from the SWRCB to the Division prior to initiation of the project.

**References:**

Calflora, *Watersheds in Kern County*

Website: <http://www.calflora.org/app/wgh?page=wcprofile&cc=KRN>

California Department of Resources, Recycle, and Recovery, *Active Landfills Profile*

Website: [www.calrecycle.ca.gov](http://www.calrecycle.ca.gov)

California Department of Water Resources, *Water Data Library*

Website: <http://www.water.ca.gov/waterdatalibrary/>

Federal Emergency Management Agency, *Map Service Center, Map ID 06020C186E and 06029C1865E* Website: <http://www.fema.gov/national-flood-insurance-program-flood-hazard-mapping>

Kern Council of Government, *Flood Plain & Dam Inundation Areas –*

Website: [http://www.kerncog.org/maps/MEAR\\_atlas/21FloodPlainandDamInundationAreas.pdf](http://www.kerncog.org/maps/MEAR_atlas/21FloodPlainandDamInundationAreas.pdf)

**ISSUES**

	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
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**X. LAND USE AND PLANNING**

*Would the project:*

- |                                                                                                                                                                                                                                                                                                             |       |       |       |   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|---|
| 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 |

**Discussion:** Primary land use for the proposed project area is agriculture and ranching. Additional land uses in the area include drilling, production and transportation of oil. The proposed project sites are located on property designated as Resource Extensive Agriculture (R-EA) on the Kern County General Plan land use map. According to conversations with David Press with the Kern County Planning Department, mineral, aggregate, and petroleum exploration and extractions are acceptable uses with R-EA designated property. The proposed project is consistent with the land use and zoning designation for the area. The Kern County General Plan Land Use, Open Space and Conservation Element states that petroleum exploration and extraction are consistent uses with agricultural designations.

The proposed project area is zoned Exclusive Agriculture (A). The project is consistent with the Exclusive Agriculture (A) zoning designations per Kern County, California Municipal Code Chapters 19.12.020 and 19.98.020 which include oil drilling and production as a permitted use. The proposed project is consistent with existing land uses.

- Xa.** The proposed project sites would not physically divide an established community as the proposed project sites are located in un-incorporated agricultural area, 2.9 miles northeast of Edison.
- Xb.** The proposed project is consistent with the land use and zoning designation for the area, and is therefore considered consistent with associated agricultural resource planning purposes and General Plan requirements. The Kern County General Plan Land Use, Open Space and Conservation Element states that petroleum exploration and extraction are consistent uses with agricultural designations. Additionally, the project is temporary in nature and compatible with agricultural usage in accordance with the Kern County Ordinance Code (July 2003), Chapter 19.98 “Oil and Gas Production.”

**Xc.** There are no adopted Habitat Conservation Plans, Natural Community Conservation Plans or other approved local, regional, or state habitat conservation plans in the project area.

**Conclusion:** No impact to land use and planning.

**Mitigation Measures:** No impacts identified. No mitigation necessary.

**References:**

Kern County *General Plan 2009*

Website: <http://pcd.kerndsa.com/planning/planning-documents/general-plans>

Kern County, *Zoning Ordinance*

Website: <http://www.co.kern.ca.us/planning/pdfs/KCZOJul12.pdf>

California Department of Fish and Wildlife. *Conservation and Mitigation Banks in California Approved by the Department of Fish and Wildlife.*

Website: <http://www.dfg.ca.gov/habcon/conplan/mitbank/catalogue/>

United States Fish and Wildlife Service. *Conservation Plans and Agreements Database.*

Website: [http://ecos.fws.gov/conserv\\_plans/public.jsp](http://ecos.fws.gov/conserv_plans/public.jsp)

**ISSUES**

*Potentially Significant Impact*      *Less Than Significant with Mitigation Incorporated*      *Less Than Significant Impact*      *No Impact*

**XI. MINERAL RESOURCES**

*Would the project:*

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

**Discussion:** Kern County serves as an important regional source of oil and natural gas. Oil facilities and transmission pipelines are located throughout the general project area. According to the Division Online Mapping System, the proposed project sites are located adjacent to the eastern edge of the Edison Oil Field. According to Division records, there are approximately 1,122 active wells, 614 plugged wells, 851 unknown wells, 117 idle wells and 83 new wells within six miles of the proposed project sites (Figure 9). According to DOMS, the closest classified active well, the Naftex Mitchell 16 is located 0.05 miles to the west of the proposed Bloemer 1 project site (Figure 9). No other mineral resources have been identified within six miles of the proposed project sites.

The proposed project sites are located in the MRZ-3 Zone (areas containing mineral deposits the significance of which cannot be evaluated from available data) as identified in Special Report 147 and the updated Special Report 210 for the Bakersfield Production-Consumption Region; however, the proposed project would not preclude the future evaluation of this potential resource.

The objective of this project is to identify and develop further mineral resources. If successful, its impacts will enhance rather than negatively impact the realization of the values and policies protected by this specific point of inquiry. If the project is not successful, the well or wells will be plugged and abandoned, and the site restored, with no negative impact on this point.

The proposed project is consistent with the Kern County Land Use, Open Space and Conservation Element of the Kern County General Plan. The Kern County General Plan Land Use, Open Space and Conservation Element states that petroleum exploration and extraction are consistent uses with agricultural designations. Additionally, the project is consistent with agricultural usage in accordance with the Kern County Ordinance Code (July 2003), Chapter 19.98 “Oil and Gas Production.”

**XIa,b.** The proposed project will not result in the loss of availability of a known mineral resource, or the loss of a locally important mineral resource recovery site.

**Conclusion:** No impact to mineral resources.

**Mitigation Measures:** No impacts identified. No mitigation necessary.

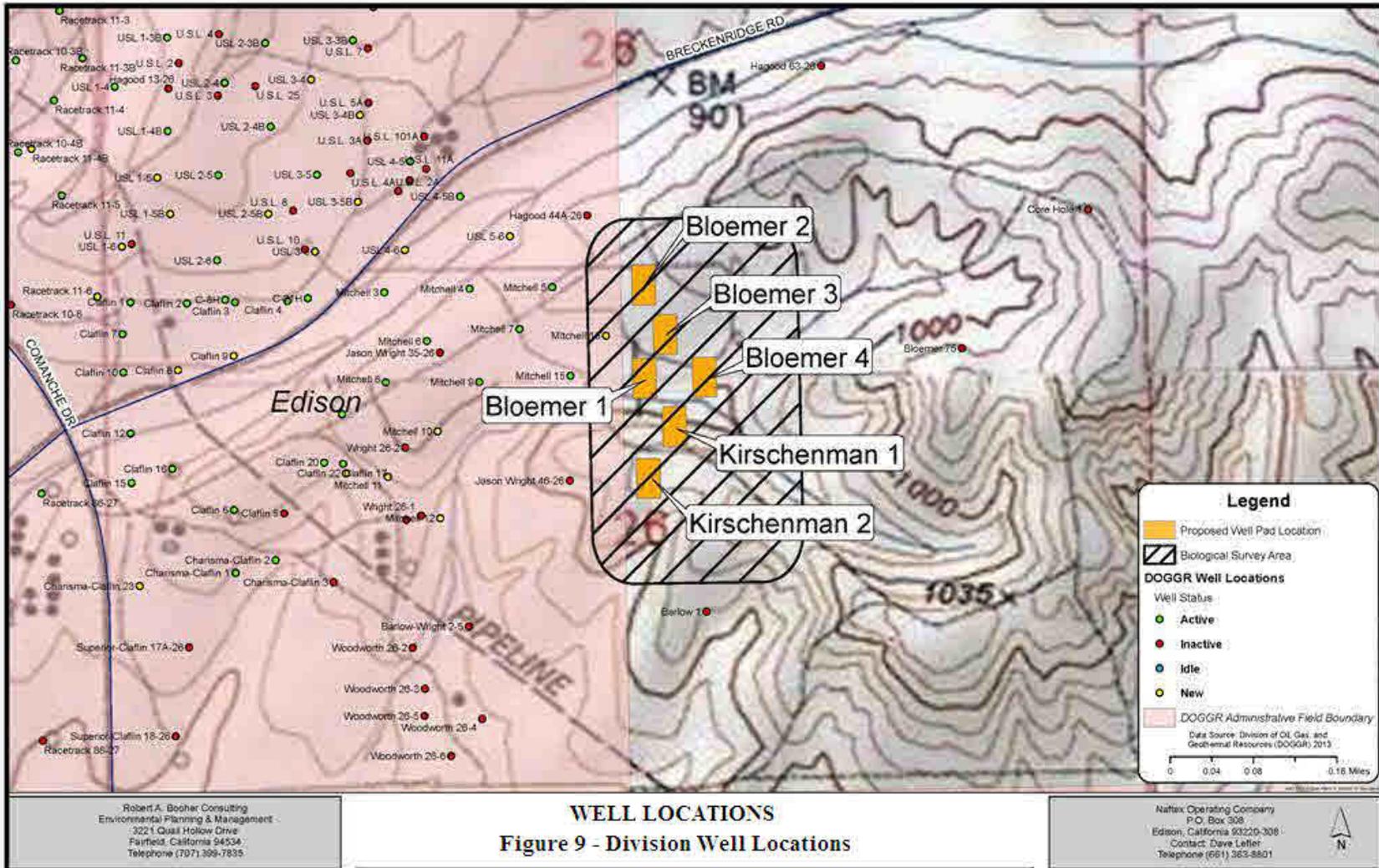
**References:**

Kern County *General Plan 2009*

Website: <http://pcd.kerndsa.com/planning/planning-documents/general-plans>

Kern County, Zoning Ordinance

Website: <http://www.co.kern.ca.us/planning/pdfs/KCZOJul12.pdf>



ISSUES	Potentially	Less Than	Less Than	
	Significant	Significant	Significant	No
	Impact	Mitigation	Impact	Impact
		Incorporated		
<b>XII. NOISE</b>				
<i>Would the project:</i>				
a. Exposure of people 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. 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
e. 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

**Discussion:** The proposed project is compatible with existing land uses in the project area and areas immediately adjoining the project parcel.

Drilling and completion activities will result in short term noise impacts and would use the following types of equipment: drilling equipment, truck-mounted crane, pumps, pneumatic tools, loaders, and a variety of miscellaneous equipment including air compressors. The number and type of equipment used during drilling and completion activities will vary from day to day.

The U.S. EPA has found that the noisiest equipment types operating at construction sites typically range from 88 dBA to 101 dBA at a distance of 50 feet. *Table 17: Noise Levels Generated by Construction Equipment* below lists noise levels typically generated by construction equipment.

**TABLE 17**  
**Noise Level Generated by Construction Equipment**

<b>Type of Equipment</b>	<b>Typical Sound Level (dBA at 50 feet)</b>
Pump	76
Generator	76
Air Compressor	81
Concrete Mixer (truck)	85
Pneumatic Tools	85
Backhoe	85
Excavator	86
Dozer	87
Front-End Loader	88
Dump Truck	88
Jack Hammer	88
Scraper	88
Pavers	89
Pile Driver	101

Sources: *U.S. Environmental Protection Agency, 1974; Noise Control for Building and Manufacturing Plants, BBN Layman Miller Lecture Notes, 1987.*

In order to determine typical sound levels associated with oil well drilling operations, Robert A. Booher Consulting conducted a sound survey on November 18, 2005 of Kenai Rig #38 using a Metrosonics 3080 Metrologger, Portable Audio Dosimeter. At the time of the survey, Kenai Rig #38 was drilling a natural gas well in Sutter County, California. Weather conditions at the time were clear with little to no wind, and a temperature of 48 degrees Fahrenheit. At the time of the survey, all drilling equipment was operating including multiple engines and both drilling mud pumps. The results of the survey are presented below in Table 18. Naftex anticipates using the same or equivalent drilling rig for its proposed project.

**Table 18**  
**Sound Survey Kenai Rig #38**

Distance (feet)	North (dBA)	South (dBA)	West (dBA)	East (dBA)
50	87	78	85	83
100	80	72	78	76
150	75	68	72	69

Source: Robert A. Booher Consulting, November 18, 2005. Sound Survey Kenai Rig#38. Sutter County, CA.

Based on the data in Tables 17 and 18, equipment associated with the construction of a drill site and drilling will produce maximum sound levels of 87 dBA at a distance of 50 feet from each of the proposed drill sites during construction and 83 dBA during drilling. The closest residence to the proposed project sites is located approximately 0.3 miles to the southwest.

The noise level during drilling at the closest residence to the proposed project sites was calculated using the equation below ([www.animations.physics.unsw.edu](http://www.animations.physics.unsw.edu)).

$$L_1 = L_2 + 20\log_{10}(R_2/R_1)$$

$$L_2 = L_1 - 20\log_{10}(R_2/R_1)$$

$$L_2 = 83 - 20\log_{10}(1,584'/50')$$

$$L_2 = 83 - 30.0$$

$$L_2 = 53 \text{ dBA}$$

$$\Delta L = L_1 - L_2$$

$L_1$  = Sound level at Object 1, the dosimeter of the noise source (83 dBA).

$L_2$  = Estimated sound Level at Object 2, the nearest residence

$R_1$  = Distance from the source of noise to the southeast dosimeter (50 feet)

$R_2$  = Distance from the source of noise to the nearest residence (1,584 feet)

Production activities will result in long term noise impacts. In order to quantify these impacts, RAB Consulting conducted a sound survey at the Naftex USL 1-3 site located west of the proposed project sites in the Edison Oil Field in Kern County, California. At the time of the survey, a 10.6 hp Westinghouse torkmate oil field electric motor, model T70D, Serial #8010, 460 volt was operating on site. Weather conditions were sunny with wind 2-6 mph from the west. The sound meter used was an Extech Instruments, model 407780 integration sound level meter, range 30-130 dB datalogger. Naftex will install like or equivalent equipment at each of the proposed project sites. The results of the survey are presented in Table 19.

**Table 19**  
**Sound Survey Measurements (dBA)**

<b>Direction From Unit</b>	<b>50 feet from unit</b>	<b>100 feet from unit</b>	<b>200 feet from unit</b>
North	51.2	46.0	39.6
South	56.0	49.2	42.1
East(directly facing the engine)	54.1	48.7	40.8
West	49.6	44.7	40.1

Based on the data in Table 18, the maximum sound level resulting from production activities will be 56.0 dBA at a distance of 50 feet from a proposed project site.

The closest residence to the proposed project sites is approximately 0.3 (1,584 feet) away. Noise levels during production at the closest residence to each of the proposed project sites were calculated using the equation below and the calculated noise levels are presented in Table 16 ([www.animations.physics.unsw.edu](http://www.animations.physics.unsw.edu)).

$$\begin{aligned}L_1 &= L_2 + 20\log_{10} (R_2/R_1) \\L_2 &= L_1 - 20\log_{10} (R_2/R_1) \\L_2 &= 56.0 - 20\log_{10} (1,584'/50') \\L_2 &= 56.0 - 30.0 \\L_2 &= \mathbf{26\ dBA}\end{aligned}$$

$$\Delta L = L_1 - L_2$$

$L_1$  = Sound level at Object 1, the dosimeter due west of the noise source (56.0 dBA).

$L_2$  = Estimated sound Level at Object 2, the nearest residence

$R_1$  = Distance from the source of noise to the south dosimeter (50 feet)

$R_2$  = Distance from the source of noise to the nearest residence (1,584 feet)

**XIIa.** Based upon the results presented above, the outdoor noise level at the nearest residence is expected to be 53 dBA during drilling activities and 26 dBA during production. The proposed project will be in compliance with the Noise Control Ordinance in the Kern County Code (Section 8.36.020 et seq.) and with Kern County General Plan Noise Element. The Noise Control Ordinance in the Kern County Code (Section 8.36.020 et seq.) prohibits a variety of nuisance noises but does not specifically mention construction or related noise. The Kern County General Plan Noise Element establishes a 65 dBA maximum Day-Night Average Noise Level (Ldn) as being considered consistent with residential uses or development. Accordingly, noise impacts at the nearest residence throughout the life of the project are well within regulatory limits for residential uses.

State and federal standards set by the U.S. Department of Labor Occupational Safety and Health Administration (OSHA) regulate worker exposure time to sound levels above 90 decibels. However, the outdoor noise level at the edge of a proposed project site is expected to be 77 dBA [ $L_2 = 83 - 20\log_{10} (100'/50')$ ] during drilling activities and 50 dBA [ $L_2 = 56.0 - 20\log_{10} (100'/50')$ ] during production. Accordingly, farm personnel working in the vicinity of each of the proposed project sites would not be exposed to sound levels exceeding state or federal standards. Therefore people will not be exposed to noise levels in excess of applicable standards.

**XIIb.** Vibration is oscillating motion of structures or the ground. The rumbling sound caused by the vibration in the ground is called ground-borne vibration. The proposed project is expected to create ground-borne vibration as a result of project activities (e.g. during drilling and production activities). Two elements need to be generally concerned regarding ground-borne vibration impacts: damage to buildings and annoyance to humans.

One of the accepted measurements for evaluating building damage associated with ground-borne vibration is peak particle velocity (PPV). According to the U.S. Department of Transportation, Surface Transportation Board (2009), “PPV is the maximum instantaneous positive or negative peak of the vibration signal, measured as distance per time (inches per second). PPV has been used historically to evaluate shock wave type vibrations from actions like blasting, pile driving and mining activities and their relationship to building damage.” Table 20 shows effects of construction vibrations on buildings.

**Table 20**  
**Effects of Construction Vibration**

Peak Particle Velocity (in/sec)	Effects on Buildings
< 0.05	No effect on buildings
0.1 to 0.5	Minimal potential for damage to weak and sensitive structures
0.5 to 1.0	Threshold at which there is a risk of architectural damage to buildings with plastered ceilings and walls. Some risk to ancient monuments and ruins.
1.0 to 2.0	U.S. Bureau of Mines data indicates that blasting vibrations in this range will not harm most buildings. Most construction vibration limits are in this range.
>3.0	Potential for architectural damage and possible minor structural damage.

Modified from Vibration at [http://www.dmoise.com/PDF\\_files/Vibration%20Primer.pdf](http://www.dmoise.com/PDF_files/Vibration%20Primer.pdf)

In order to estimate ground-borne vibration impacts associated with the proposed project activities, RAB Consulting retained the services of Gasch Geophysical Services, Inc. (GGSI) to conduct a ground vibration monitoring study of a triple rig operating near Lost Hills, California. The proposed study used Instantel vibration monitoring instruments and all units were calibrated according to manufacturer’s specifications. A 3-component tri-axial geophone was utilized to record vibration levels in the longitudinal (toward the source), transverse (horizontally orthogonal to the longitudinal direction), and vertical (up and down) directions. Measurements were recorded on two sides (north side and south side) of the drill rig. The power system including mud pumps, water and fuel storage and compressors were located on the north side of the drill rig. The catwalk and other minor transient vibration generating equipment were located on the south side of the drill rig. The results of the study are presented in Table 21.

**Table 21\***  
**Vibration Monitoring Study Results**

Distance from Drill Hole (feet)	Transverse Direction (in/sec)	Vertical Direction	Longitudinal Direction
87 feet north	0.0550	0.105	0.0600
152 feet north	0.0400	0.0300	0.0200
225 feet north	0.0150	0.01000	0.01000
321 feet north	0.01000	0.01000	0.01000
105 feet south	0.0150	0.01000	0.01000
188 feet south	0.0150	0.0150	0.01000
335 feet south	0.01000	0.01000	0.01000

\*Gasch Geophysical Services, Inc. Vibration Monitoring of a Large Drill Rig, December 2012.

GGSI recorded a PPV of 0.105 inches/second at 87 feet during drilling activities associated with a triple rig. The following calculation was used to determine the PPV (in/sec) at the nearest residence to the proposed project site.

$$PPV_{\text{equipment}} = PPV_{\text{ref}} (25/D)^n$$

Where:

- PPV<sub>equipment</sub> = peak particle velocity in in/sec of the equipment adjusted for the distance
- PPV<sub>ref</sub> = reference vibration level in in/sec at 87 feet (drill rig)
- D = distance from equipment to the nearest residence in feet
- n = 1.5 (the value related to the attenuation rate through the ground)

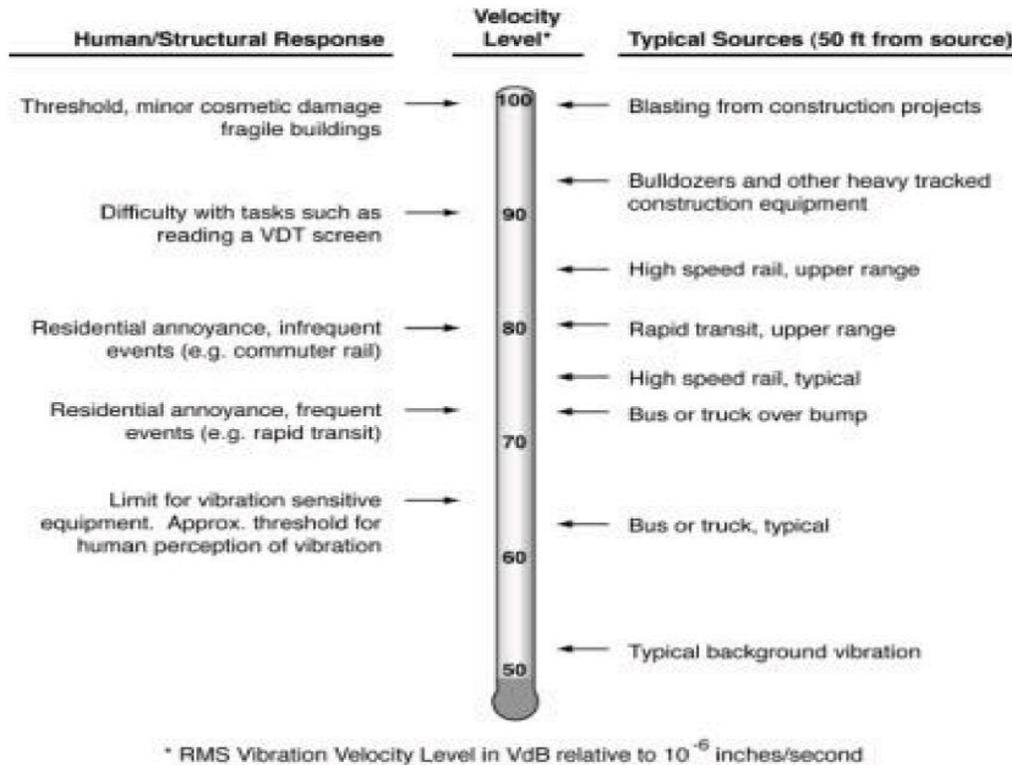
$$PPV = 0.105(87/1,584)^{1.5} = 0.0013 \text{ in/sec}$$

Ground borne vibration impacts are based upon a study of a triple rig described above. Naftex proposes to use a double rig for the proposed drilling activities; therefore, our analysis presents a more conservative value where impacts will be even less than calculated above. The estimated PPV at the nearest residences is lower than the PPV of 0.05 in/sec that may cause effects on buildings as shown in (Table 20). Therefore, the estimated ground-borne vibration generated by the proposed project will have less than significant impact to structures.

Another widely accepted source of measurements, as an alternative to using PPV, for evaluating human annoyance associated with ground-borne vibration is root-mean-square (rms) amplitude. According to the U.S. Department of Transportation, Federal Transit Administration (2006), "It takes some time for human body to respond to vibration signals. In a sense, the human body responds to an average vibration amplitude. Because the net average of a vibration is zero, the root mean square (rms) amplitude is used to describe the "smoothed" vibration amplitude. The root mean square of a signal is the square root of the average of the squared amplitude of the signal. The average is typically calculated over a one-second period." The rms,

connoted as vibration decibels (VdB) on a log scale, is used to evaluate human annoyance against ground-borne vibration. Figure 10 shows the human/structural response to different levels of ground-borne vibration velocity levels.

**Figure 10**  
**Human/Structural Response to Different Levels of Ground-Borne Vibration Velocity Levels**



According to the U.S. Department of Transportation, Federal Transit Administration (2006), the background vibration velocity level in residential areas is usually 50 VdB or lower well below the threshold of perception for humans which is around 65 VdB. The range of interest is from approximately 50 VdB to 100 VdB.” Although the *CEQA Guidelines* do not specifically define the levels at which ground-borne vibration is considered "excessive.", Table 22 is an example to show the human response to different levels of ground-borne noise and vibration.

**Table 22**  
**Human response to different levels of ground-borne noise and vibration**

Vib. Velocity Level	Noise Level		Human Response
	Low Freq1	Mid Freq2	
65 VdB	25 dBA	40 dBA	Approximate threshold of perception for many humans. Low-frequency sound usually inaudible, mid-frequency sound excessive for quiet sleeping areas.
75 VdB	35 dBA	50 dBA	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find transit vibration at this level annoying. Low-frequency noise acceptable for sleeping areas, mid-frequency noise annoying in most quiet occupied areas.
85 VdB	45 dBA	60 dBA	Vibration acceptable only if there are an infrequent number of events per day. Low-frequency noise annoying for sleeping areas, mid-frequency noise annoying even for infrequent events with institutional land uses such as schools and churches.
Notes:			
1. Approximate noise level when vibration spectrum peak is near 30 Hz.			
2. Approximate noise level when vibration spectrum peak is near 60 Hz.			

In order to estimate ground-borne vibration impacts to humans by the proposed project activities, the velocity level in decibels,  $L_v$  (VdB) at the nearest residence to the proposed project sites is calculated using the following equation:

$$L_v = 20 \times \log_{10}(v/v_{ref})$$

Where:

- $L_v$  = velocity level in decibels (VdB)
- $v$  = RMS velocity amplitude = PPV/Crest Factor
- $v_{ref}$  = reference velocity amplitude ( $1 \times 10^{-6}$ )

Crest Factor is defined as the ratio of the PPV amplitude to the RMS velocity amplitude. To calculate the RMS velocity amplitude, a crest factor of 4 for random ground vibration was used<sup>†3</sup>.

$$\text{RMS velocity amplitude} = \text{PPV/Crest Factor} = 0.0013/4 = 0.00033$$

Vibration velocity level for the proposed project sites is calculated below:

$$L_v = 20 \times \log_{10}(0.00033/1 \times 10^{-6}) = 50.4 \text{ VdB}$$

The calculated vibration velocity at the nearest residence is lower than the threshold of perception for humans of 65 VdB as shown in Table 22. Therefore, the estimated

ground-borne vibration generated by the proposed project would have less than significant impact to structures.

- XIIc.** The site preparation, drilling, completion and installation of production equipment phases of the proposed project are short term and temporary in nature. The production phase of the proposed project will continue through the life of each well. Based upon the results presented above, the average outdoor noise level at a proposed project site is expected to be 53 dBA during drilling activities and 26 dBA during production at the nearest residence. There will be no increase in the permanent ambient noise levels in the project vicinity.
- XIIId,e.** The proposed project sites are not located within an airport land use plan or within two miles of a public airport or public use airport. Therefore, the project would not expose people to excessive noise levels.

**Conclusion:** Impacts will be less than significant.

**Mitigation Measures:** No significant impacts identified. No mitigation necessary.

**References:**

U.S. Environmental Protection Agency, 1974; *Noise Control for Building and Manufacturing Plants*, BBN Layman Miller Lecture Notes, 1987.

California Department of Transportation, Noise, Vibration, and Hazardous Waste Management Office (2004) *Transportation and Construction Induced Vibration Guidance Manual*. Prepared by Jones & Stokes, Sacramento, CA

Kern County *General Plan 2009*

Website: <http://pcd.kerndsa.com/planning/planning-documents/general-plans>

Kern County, Zoning Ordinance

Website: <http://www.co.kern.ca.us/planning/pdfs/KCZOJul12.pdf>

U.S. Department of Transportation, Surface Transportation Board (2009) *Northern Rail Extension Final Environmental Impact Statement, Appendix J – Noise and Vibration, for STB Finance Docket No. 35468, Alaska Railroad Corporation – Petition for Exemption – To Construct and Operate a Rail Line Between North Pole, Alaska and Delta Junction, Alaska.*

U.S. Department of Transportation, Federal Transit Administration (2006) *Transit Noise and Vibration Impact Assessment*. FTA-VA-90-1003-06

Vibration at [http://www.drnoise.com/PDF\\_files/Vibration%20Primer.pdf](http://www.drnoise.com/PDF_files/Vibration%20Primer.pdf)

**ISSUES**

<i>Potentially Significant Impact</i>	<i>Less Than Significant Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
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**XIII. POPULATION AND HOUSING**

*Would the project:*

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

**Discussion:** The proposed project sites are located in an unincorporated area of central Kern County. The closest community to the proposed project sites is Edison, which is located approximately 2.9 miles to the southwest of the proposed project sites. The project area is used primarily for oil exploration and extraction. The closest residence to the proposed project sites is located approximately 0.3 miles to the southwest.

**XIIIa.** Naftex project personnel, drilling company employees and other support personnel currently reside in the local area primarily within the city of Bakersfield. Accordingly, the proposed project would not induce population growth in the project area.

**XIIIb,c.** The project does not propose to displace or relocate any existing housing or persons. Therefore, no persons would be displaced nor housing be constructed elsewhere during project implementation.

**Conclusion:** No impact.

**Mitigation Measures:** No impacts identified. No mitigation necessary.

**References:**

Kern County *General Plan 2009*

Website: <http://pcd.kerndsa.com/planning/planning-documents/general-plans>

**ISSUES**

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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**XIV. PUBLIC SERVICES**

*Would the project:*

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

<i>Fire protection?</i>	_____	_____	_____	X
<i>Police protection?</i>	_____	_____	_____	X
<i>Schools?</i>	_____	_____	_____	X
<i>Parks?</i>	_____	_____	_____	X
<i>Other public facilities?</i>	_____	_____	_____	X

**Discussion:** The proposed project sites are located on private lands in an unincorporated area within central Kern County.

**XIVa.** The Lamont Sheriff’s Department provides law enforcement services in the project area and its main office located at 122202 Main Street, Lamont, CA 93241 is approximately 9 miles to the southwest of the proposed project sites. Fire protection is provided by the Kern County Fire Department and its Fire Station No. 45 located at 11809 Edison Highway is approximately 3 miles from the proposed project sites. No cities, schools, parks, or other public facilities are located in the general vicinity of the proposed project sites. No existing or proposed schools are located within one-quarter mile of the proposed project site. The nearest school (Edison Middle School located at 721 South Edison Road, Bakersfield, California 93307) is approximately 3.5 miles southwest of the proposed project sites. The proposed project site is not located within two miles of a public airport, public use airport, or private airstrip. The nearest public airport is the Bakersfield Municipal Airport (2000 S Union Ave., Bakersfield, CA 93307) which is located approximately 9.8 miles to southwest of the proposed project sites. Therefore, implementation of the proposed project is not expected to interfere with or adversely affect fire protection, police protection, school, airports, park, or other public services or facilities in the project area.

**Conclusion:** No impact.

**Mitigation Measures:** No impacts identified. No mitigation necessary.

**References:**

Kern County Online Mapping System

Website: [http://maps.co.kern.ca.us/imf/imf.jsp?site=krn\\_pub](http://maps.co.kern.ca.us/imf/imf.jsp?site=krn_pub)

**ISSUES**

	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
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**XV. RECREATION**

*Would the project:*

- |                                                                                                                                                                                              |       |       |       |   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|---|
| a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | _____ | _____ | _____ | X |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|---|

**Discussion:** The proposed project area and well sites are located on private land that is used primarily for ranchland, farming and oil production. This land does not provide recreational activities to the public.

**XVa.** There are no recreational facilities within the project area. The proposed project would not require the use of recreational resources and would not create the need for new recreational facilities. Therefore, no impacts to recreational facilities are expected.

**Conclusion:** No impact.

**Mitigation Measures:** No impacts identified. No mitigation necessary.

**References:**

Kern County Online Mapping System  
 Website: [http://maps.co.kern.ca.us/imf/imf.jsp?site=kern\\_pub](http://maps.co.kern.ca.us/imf/imf.jsp?site=kern_pub)

**ISSUES**

	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
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**XVI. TRANSPORTATION/TRAFFIC**

*Would the project:*

a.	Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e. result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections?	_____	_____	X	_____
b.	Exceed, either individually or cumulatively, a level of service standard 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.	Result in inadequate parking capacity?	_____	_____	_____	X
g.	Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	_____	_____	_____	X

**Discussion:** California State Highway 58, Comanche Drive, and Breckenridge Road provide access to the proposed project sites. There are additional dirt and/or gravel roads that serve as farm access roads in the proposed project area that have limited public access.

**XVIa.** As reflected in Table 23, the maximum number of daily vehicle trips would be 18 (36 one way trips). This would occur during the mobilization/demobilization when drilling equipment is moved on and off site. The 18 vehicle round trips would include seven (7) heavy truck/semi round trips, ten (10) car / pickup truck roundtrips and one (1) water truck round trip.

**Table 23**  
**Maximum Daily Vehicle Trip Generation**

<b>Vehicle Type / Number</b>	<b>One Way Trips</b>
Water Truck / 1	2
Car and Pickup Trucks Roundtrips / 10	20
Heavy Truck/Semi - Mobilization and Demobilization of Equipment / 5	10
Heavy Truck/Semi-Drilling Phase/2	4
<b>Total Trips</b>	<b>36</b>

RAB Consulting reviewed traffic counts conducted by Caltrans at the intersection of Comanche Drive and State Highway 58 during 2011 (approximately 2.5 miles south of the project site) to quantify the average annual daily traffic (AADT) levels. According to Caltrans, the AADT for this segment of State Highway 58 is 25,000 vehicles (Ref: Caltrans Website 2010, <http://traffic-counts.dot.ca.gov/index.htm>). Accordingly the project would contribute a maximum of 18 additional vehicles trips per day during the proposed drilling phase of the project. As such, the proposed project increases the roadway traffic on State Highway 58 a maximum of 0.14% (36/25,000) during the drilling phase of the proposed project. Therefore, the proposed project would not cause the designed capacity of State Highway 58 to be exceeded during the proposed project.

Traffic count data was also acquired from the Kern Council of Governments website. Comanche Drive approximately 0.5 south of Breckenridge Road has an AADT of 2,537 (April 12, 2011) and has LOS B rating (Steve Young, Kern County Roads Development Review Section). Accordingly the project would contribute a maximum of 18 additional vehicles trips per day during the proposed drilling phase of the project. As such, the proposed project increases the roadway traffic on Comanche Drive a maximum of 1.4% (36/2,537) during the drilling phase of the proposed project. Therefore, the proposed project would not cause the designed capacity of Comanche Drive to be exceeded during the proposed project.

Breckenridge Road approximately 0.5 mile east of Comanche Drive had an AADT of 203 (May 17, 2011) with a LOS A (Kern Council of Governments - <http://206.227.45.77/kerncog> ). Accordingly the project would contribute a maximum of 18 additional vehicles trips per day during the proposed drilling phase of the project. As such, the proposed project increases the roadway traffic on Breckenridge Road a maximum of 17.7% (36/203) during the drilling phase of the proposed project. Therefore, the proposed project would not cause the designed capacity of Breckenridge Road to be exceeded during the proposed project.

The maximum number of daily vehicle trips during the production phase of the proposed project will be 1 (2 one way trips) assuming all six (6) wells are producing. RAB Consulting reviewed traffic counts conducted by Caltrans at the intersection of

Comanche Drive and State Highway 58 during 2011 (approximately 2.5 miles south of the project site) to quantify the average annual daily traffic (AADT) levels. According to Caltrans, the AADT for this segment of State Highway 58 is 25,000 vehicles (Ref: Caltrans Website 2010, <http://traffic-counts.dot.ca.gov/index.htm>). Accordingly the project would contribute a maximum of 18 additional vehicles trips per day during the proposed drilling phase of the project. As such, the proposed project increases the roadway traffic on State Highway 58 a maximum of 0.008% (2/25,000) during the production phase of the proposed project. Therefore, the proposed project would not cause the designed capacity of State Highway 58 to be exceeded during the proposed project.

Traffic count data was also acquired from the Kern Council of Governments website. Comanche Drive approximately 0.5 south of Breckenridge Road has an AADT of 2,537 (April 12, 2011) and has LOS B rating (Steve Young, Kern County Roads Development Review Section). Accordingly the project would contribute a maximum of 18 additional vehicles trips per day during the proposed drilling phase of the project. As such, the proposed project increases the roadway traffic on Comanche Drive a maximum of 0.08% (2/2,537) during the production phase of the proposed project. Therefore, the proposed project would not cause the designed capacity of Comanche Drive to be exceeded during the proposed project.

Breckenridge Road approximately 0.5 mile east of Comanche Drive had an AADT of 203 (May 17, 2011) with a LOS A (Kern Council of Governments - <http://206.227.45.77/kerncog>). Accordingly the project would contribute a maximum of 18 additional vehicles trips per day during the proposed drilling phase of the project. As such, the proposed project increases the roadway traffic on Breckenridge Road a maximum of 1.0% (2/203) during the production phase of the proposed project. Therefore, the proposed project would not cause the designed capacity of Breckenridge Road to be exceeded during the proposed project.

**XVIb.** The General Plan classifies roadway Level of Service (LOS) for rural and unincorporated areas of the County with a rating of A, B, C, D, E, or F with A representing the best LOS, and F representing the worst LOS. LOS ratings are defined briefly below:

LOS A - Conditions of free flow. Speed is controlled by drivers' desires, speed limits, or physical roadway conditions, not other vehicles.

LOS B - Conditions of stable flow. Operating speeds beginning to be restricted, but little or no restrictions on maneuverability.

LOS C - Conditions of stable flow. Speeds and maneuverability somewhat restricted. Occasional back-ups behind left-turning vehicles at intersections.

LOS D - Conditions approach unstable flow. Tolerable speeds can be maintained, but temporary restrictions may cause extensive delays. Speeds may decline to as low as

40% of free flow speeds. Little freedom to maneuver; comfort and convenience low.

LOS E - Unstable flow with stoppages of momentary duration. Average travel speeds decline to one-third the free flow speeds or lower, and traffic volumes approach capacity. Maneuverability severely limited.

LOS F - Forced Flow. Represents jammed conditions. Intersection operates below capacity with several delays; may block upstream intersections.

The Kern County General Plan establishes LOS D as the minimum acceptable standard for principal arterial roadways. The segment of State Highway 58 through the project area is classified as LOS C (Caltrans Website 2011 - <http://www.dot.ca.gov/>). Therefore, the segment of State Highway 58 in the project area is considered to have a good LOS with stable traffic flow with few restrictions. Under the Kern County General Plan, the segments of Breckenridge Road through the project area is classified as LOS A (Steve Young, Kern County Roads Development Review Section). Therefore, Breckenridge Road in the project area is considered to have a good LOS with stable traffic flow with little or no restrictions. The Comanche Drive approach to Breckenridge Drive in the project area has a LOS B with conditions of stable flow and operating speeds beginning to be restricted, but little or no restrictions on maneuverability. The addition of a maximum of 36 vehicle trips traveling to the proposed project sites on a daily basis would not be considered a significant increase in the AADT, and as such, would not have a significant effect on the existing LOS ratings for State Highway 58, Breckenridge Road or Comanche Drive.

- XVIc.** The project would not have a significant impact on air traffic patterns. The proposed project sites do not occur within the immediate vicinity of any public airstrips as the nearest public airport is the Bakersfield Municipal Airport (2000 S Union Ave., Bakersfield, CA 93307) located 9.8 miles to the southwest of the proposed project sites. The project will be less than 200 feet above ground level and will be more than 10,000 feet from an airport with a runway of 3,200 feet. In addition, the project area is not located in an airport influence area.
- XVI d.** No public roads would be constructed or improved as part of this project. Therefore, the project is not expected to increase the hazards due to a design feature or incompatible uses of a roadway.
- XVI e.** The proposed project sites have adequate emergency access.
- XVI f.** The proposed project sites will have adequate parking for workers and equipment required to drill and produce each well. The proposed project will not use any public parking and will not result in inadequate parking capacity.
- XVI g.** Drilling and producing an oil well will not affect pedestrian or bicycle circulation as no public roadways will be altered or improved during project activities. The

proposed project will have restricted access; accordingly, bicyclists and pedestrians will not have access to each of the proposed project sites. Additionally, the proposed project is in a remote area and pedestrians and bicyclists are not common in this area.

**Conclusion:** Impacts will be less than significant.

**Mitigation Measures:** No significant impacts identified. No mitigation necessary.

**References:**

California Department of Transportation, Caltrans Website 2011

Website: <http://traffic-counts.dot.ca.gov/index.htm>

Kern County *General Plan 2009*

Website: <http://pcd.kerndsa.com/planning/planning-documents/general-plans>

**ISSUES**

	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
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**XVII. UTILITY AND SERVICE SYSTEMS**

*Would the project:*

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 new or expended entitlements needed?	_____	_____	_____	X
e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	_____	_____	_____	X
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	_____	_____	_____	X

**Discussion:** No utility or service systems expansion will be required to support the drilling or operation of the wells, or other aspects of the project.

**XVIIa.** The project does not conflict with applicable water quality and waste discharge standards relating to water quality. Production water is the only potential wastewater that would be generated during project activities, and production water would be transported by flowlines to Naftex's Section 26 Tank Farm and will be disposed of in Naftex's Racetrack 76-27, 77-27 or 86-27 water disposal wells, Division permitted Class II disposal wells. Naftex anticipates that 90 barrels (3,780 gallons) of production water a day would be generated at each of the well sites that are put into

- production. Accordingly the proposed project would not exceed wastewater treatment requirements of the CVRWQCB.
- XVIIb.** The project as proposed would not 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.
- XVIIc.** The project would create negligible runoff as each of the proposed project sites are approximately 0.55 acres in size, topography is relatively flat with gently sloping areas and the proposed project sites are not completely impervious. Accordingly, the proposed project would not 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.
- XVIId.** Water would be obtained from Naftex's Racetrack Water Plant with existing entitlements to water and no new entitlements would be required. There is no impact anticipated on water supplies.
- XVIIe.** See XVIIb.
- XVIIf.** Naftex does not anticipate any non-hazardous solid waste to be produced during project activities; however, if any non hazardous solid waste is produced it would be disposed at the Kern County Waste Management Bena Landfill, located at 2951 Neumarkel Road, Bakersfield, California 93307. The Kern County Waste Management Bena Landfill is located approximately 6.5 miles to the southeast of the proposed project site. This landfill is permitted to receive up to 4,500 tons/day. The minimal amount of waste generated during the proposed project would not exceed capacity of waste disposal facilities.

**Conclusion:** No Impact.

**Mitigation Measures:** No impacts identified. No mitigation necessary.

**References:**

California Department of Resources, Recycle, and Recovery, *Active Landfills Profile*  
Website: [www.calrecycle.ca.gov/SWFaciliates/Landfills/](http://www.calrecycle.ca.gov/SWFaciliates/Landfills/)

**ISSUES**

<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
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**XVIII. MANDATORY FINDINGS OF SIGNIFICANCE**

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 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

**XVIIIa. Impacts on the Environment and Special Status Species**

With the incorporation of required mitigation measures as outlined in this initial study, the project does not 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 rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory.

**XVIIIb. Cumulative Impacts**

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.

### ***Past, Current and Probable Future Projects***

The proposed project is not a part of any larger, planned development.

According to the Division Online Mapping System, the proposed project sites are located adjacent to the eastern edge of the Edison Oil Field. According to Division records, there are 117 active wells, 57 plugged wells, 37 unknown wells, 8 idle wells and 23 new wells within one mile of the proposed project sites (Figure 9). The majority of these wells are located within the Edison Oil Field, a high density oil field that was discovered in 1928. The closest classified new well, the Naftex Mitchell 16 is located 0.05 miles to the west of the proposed Bloemer 1 project site (Figure 9). No other oil and gas wells are currently being permitted within one (1) mile of the proposed project sites.

A review of Kern County Planning Department Notice of Preparation records failed to identify any proposed project within one (1) mile of the proposed project sites.

### **Potential Cumulative Impacts**

Based upon the results of the initial study, it was determined that there would be no impacts associated with Agriculture and Forest Resources, Geology and Soil, Hydrology and Water Quality, Land Use and Planning, Mineral Resources, Population and Housing, Public Services, Recreation and Utility and Service Systems. Accordingly, the proposed project would not result in cumulative impacts to Agriculture and Forest Resources, Geology and Soil, Hydrology and Water Quality, Land Use and Planning, Mineral Resources, Population and Housing, Public Services, Recreation and Utility and Service Systems.

The following is a discussion of cumulative impacts that could result from the proposed project in conjunction with past, other current and probable future projects as described above. The term "cumulatively considerable", for the purposes of this analysis, means the effects of a project are considerable when viewed in connection with effects of past projects, other current and probable future projects.

### **Aesthetics**

Project related drilling activities viewed in conjunction with existing oil and gas activities and/or reasonably foreseeable projects could result in potential cumulative impacts that could degrade the visual existing character of the area and its surrounding. However, no reasonably foreseeable projects were identified. Additionally, as drilling activities are short-term and existing oil and gas operations and agricultural facilities are not visible from the proposed project sites, short term impacts would not be cumulatively considerable impact.

Likewise, production activities viewed in conjunction with existing oil and gas operations in the project area could cumulatively degrade the visual existing character

of the area and its surroundings. However, the proposed well sites are not visible from public roads. Additionally, as production equipment is similar in size and shape to tanks, pumps and piping associated with existing oil and gas sites located throughout the project area, there will be no considerable change to the visual character of the area and its surroundings. Additionally, production equipment will be painted in earth tones. No cumulatively considerable impact associated with aesthetics has been identified.

### **Air Quality**

The current project is in compliance with the SJVAPCD 2007 Ozone Plan. This Plan was reviewed and approved by CARB and the federal EPA. This Plan sets forth specific requirements that will substantially lessen cumulative impacts from NO<sub>x</sub> and ROG emissions and was formally adopted by the SJVAPCD through a public review process in 2007. Details of the Plan can be found at:

[http://www.valleyair.org/Air\\_Quality\\_Plans/Ozone\\_Plans.htm](http://www.valleyair.org/Air_Quality_Plans/Ozone_Plans.htm)

Consistent with this Plan, SJVAPCD has adopted an aggressive set of policies, rules and regulations. These include adoption of indirect source review (ISR) and the nation's most stringent limits on NO<sub>x</sub> emissions from boilers, heater and IC engines. The following rules aimed at reducing emissions from oil and gas production:

- Rule 4306 – Reduction of NO<sub>x</sub> from boilers, heaters and steam generators
- Rule 4624 – Transfer of organic liquids
- Rule 4702 – Limits on NO<sub>x</sub> emissions from IC engines

CEQA Guidelines subsection (h)(3) of Section 15064 allows the Lead Agency to determine that cumulative impacts are less than significant when a project complies with a previously approved plan or mitigation program. Since the air quantity impacts of the present project are individually insignificant, and the present project is in compliance with the SJVAPCD's approved plan emission reduction plans, we conclude that the air quality impacts of the present project are not only individually insignificant but also not cumulatively considerable.

### **Biological Resources**

The biological assessment found no sensitive plant or animal species present within the proposed project sites or within the buffer area around the proposed project sites and proposed access roads. An area of approximately 20 acres was surveyed as exact well sites were not determined at the time of biological surveys. As a result, a buffer area significantly larger than 250 feet was surveyed around the proposed project sites. No riparian, wetland, stream, vernal pool, federally protected wetland habitat or other natural or sensitive community types were observed within the footprint of the proposed project sites, existing or proposed access roads, or buffer areas during the biological assessment. The proposed project sites would not interfere with movement

of any wildlife species or with established native resident or migratory wildlife corridors. Native resident and/or migratory fish and known native wildlife nursery sites are not present within the proposed project sites or area. The project as proposed would not conflict with any local policies or ordinances protecting biological resources or local tree preservation policies/ordinances.

As previously stated, the proposed project is located in an area used primarily for extensive oil and gas production and for agricultural purposes (grazing land). The project sites are located adjacent to the Edison Oil Field to the west and agricultural grazing land (annual grassland habitat) to the east. Approximately, 2,010 acres of grazing land (annual grassland habitat) are located within a one (1) mile radius of the proposed project sites. There are 117 active wells, 57 plugged wells, 37 unknown wells, 8 idle wells and 23 new wells within one mile of the proposed project sites. A review of aerial photographs indicates that 146 of these sites have been restored and the 96 remaining sites occupy approximately 47 acres. Accordingly, when combined with 4.3 acres of annual grassland habitat disturbed by the proposed project, 51.3 acres of annual grassland habitat will be cumulatively impacted within a one (1) mile radius of the proposed project sites. This represents a cumulative impact of 2.5% to annual grassland habitat within a one (1) mile radius of the proposed project sites. Accordingly, the project will not have a cumulatively considerable effect on biological resources.

### **Cultural Resources**

The cultural resources records search and Native American Consultation did not identify any cultural or historic resources within the proposed project sites. The records search revealed that five (5) cultural resource studies were previously conducted, resulting in the recording of one (1) historic-period cultural resource within one mile of the proposed project; however, these resources will not be impacted. Additionally, existing oil and gas well sites and agricultural sites identified within the vicinity of the proposed project sites have been previously disturbed. Accordingly, there will be no cumulative impact to cultural resources.

### **Greenhouse Gas Emissions**

Naftex is subject to compliance with CARB's cap-and-trade regulations. Consistent with CCR 15064 (h)(3), the SJVAPCD finds that compliance with CARB's cap-and-trade regulation would avoid or substantially lessen the impact of project specific GHG emissions on global climate change. Facilities subject to cap-and-trade regulation are subject to an industry-wide cap on overall GHG emissions. As such, any growth in emissions must be accounted for under that cap, such that a corresponding and equivalent reduction in emissions must occur to allow any increase. The SJVAPCD therefore concludes that projects occurring at facilities

subject to CARB's cap-and-trade regulation would have a less than significant individual and cumulative impact on global climate change. Considering the above, cumulative impacts from GHG emissions are less than significant.

### **Hazards and Hazardous Materials:**

The proposed project includes the transportation and storage of hazardous materials including fuels, oils, lubricants, hydraulic fluids, and solvents. All hazardous materials, such as diesel fuel, will be transported and stored according to applicable federal, state, and local regulations. In the event of a hazardous materials spill at a proposed project site, impacts would be localized, not extending beyond the specific spill. If a spill occurs at another oil well site location, resulting impacts would also be localized. The closest oil facility, the Naftex Mitchell 16 is located 0.05 miles to the west of the proposed project sites and the closest residence is located approximately 0.3 miles southwest of the proposed project sites. Accordingly, no cumulative impacts are anticipated.

### **Noise**

The geographic scope of the cumulative noise analysis consists of the immediate project vicinity (adjacent parcels) and surrounding sensitive receptors. No impacts were identified with respect to vibration. Accordingly, there would be no cumulative impact due to vibration.

Noise impacts associated with the proposed project would result in short term impacts associated with project activities prior to the ongoing production phase and long term impacts associated with production phase of the project.

The Division identified no other projects in the vicinity of the proposed project. In addition, the Division understands that Naftex would not drill the wells at the same time. Accordingly, there would be no short term cumulative impact associated with the proposed project.

Long term impacts associated with equipment associated with the production phase, existing production equipment and production equipment associated with planned projects would result in minimal cumulative impacts.

However, noise is a highly localized phenomenon and the other existing and planned projects are expected to be located a considerable distance from the proposed project sites. The closest existing well is located 0.05 miles from the proposed project site. Sound levels associated with this well are expected to be in the same range as the sound levels resulting from the proposed project during the production phase. It is also important to keep in mind that because decibels are logarithmic ratios, they cannot be manipulated in the same way as arithmetic numbers. Addition of decibels produces such results as  $70 \text{ dBA} + 70 \text{ dBA} = 73 \text{ dBA}$ . Accordingly, if a single production facility produced a sound level of 26 dBA and another identical facility

was located adjacent to the first site, the two production sites would produce a total sound level of 29 dBA. This is twice as much acoustic energy, however, with only a 3 dBA change. As a second example of decibel addition, if one production site produces a sound level of 70 dB and the other 60 dB, the combined sound level will be 70.4 dB. When the difference between two sound levels is greater than 10 decibels, the lesser sound is negligible in terms of affecting the total level. As a result of the proposed project, if all five (5) wells are producing at the same time, the sound level would be 33 dBA. In addition the sound level associated with the closet well would be approximately 26 dBA. The combined cumulative impact would be 33.8 dBA. It is therefore reasonable to conclude that project generated noise would not combine with noise from other projects in a manner resulting in cumulatively considerable noise impacts.

The combined cumulative impact of noise from the proposed project would not result in cumulative noise levels in excess of 33.8 dBA at any sensitive receptor. Implementation of the proposed project would not exceed noise thresholds; therefore, the project would not contribute in a cumulatively considerable manner to noise impacts.

### **Transportation**

California State Highway 58, Comanche Drive, and Breckenridge Road provide access to the proposed project sites. The segment of State Highway 58 through the project area is classified as LOS C. The segment of Breckenridge Road through the project area is classified as LOS A. The Comanche Drive approach to Breckenridge Drive in the project area has a LOS B. The Kern County General Plan Circulation element establishes LOS D as the minimum acceptable standard for principal arterial roadways. The increase in traffic trips due to the project are not considered to be a significant impact to the established LOS ratings since the additional traffic from the project when added to the current traffic on State Highway 58, Comanche Drive, and Breckenridge Road will not alter the Level of Service ratings on the roadways or increase traffic so as to cause the roadways to be reclassified to an unacceptable LOS rating. As no planned, pending, or recently approved projects have been identified, there would be no increase to traffic volume or the LOS ratings for State Highway 58, Comanche Drive, and Breckenridge Road. Accordingly, there would be no cumulative impact.

### **XVIIIc. Impacts on Humans**

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



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## ATTACHMENT A

# MITIGATION MONITORING AND REPORTING PLAN

**Bloemer and Kirschenman Exploratory Oil and Gas Project  
MITIGATION MONITORING AND REPORTING PLAN**

Environmental Impact	Mitigation Measures	Timing of Monitoring Requirement	Responsibility for Compliance	Method for Compliance	Enforcement	Checkoff Date/Initials
<b>III. Air Quality</b>						
<p>b) Violate any air quality standard or contribute to an existing or projected air quality violation?</p> <p>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 that exceed quantitative thresholds for ozone precursors?)</p>	<p>Air Quality 1. All disturbed areas, including storage piles, which are not being actively used for construction purposes, shall be effectively stabilized using water.</p> <p>Air Quality 2. Unpaved access roads shall be effectively stabilized of dust emissions using water.</p> <p>Air Quality 3. All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions by using the application of water or by presoaking.</p> <p>Air Quality 4. When materials are transported off-site, all material shall be covered, effectively wetted to limit visible dust emissions, or at least six (6) inches of freeboard space from the top of the container shall be maintained.</p> <p>Air Quality 5. Following addition of materials to, or removal of materials from the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions by using sufficient water.</p> <p>Air Quality 6. Limit of traffic speeds on unpaved access roads to 15mph.</p>	<p>Ongoing during project activities.</p>	<p>Division and Naftex.</p>	<p>Inspection by environmental monitor.</p>	<p>Require as condition of approval.</p>	

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<b>IV. Biological Resources</b>						
<p>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 Dept. of Fish &amp; Game or US Fish &amp; Wildlife Service?</p>	<p>Biological 1. As close to beginning of project activities as possible, but not more than 14 days prior to project activities, a qualified biologist shall conduct a final pre-construction survey of the proposed well site to insure that no special-status wildlife species have recently occupied the project site or buffer. A qualified biologist shall be present immediately prior to project activities that have potential to impact sensitive species to identify and protect potentially sensitive resources.</p> <p>Biological 2 - Project site boundaries shall be clearly delineated by stakes, flagging and /or rope or cord to minimize inadvertent degradation or loss of adjacent habitat during construction and drilling operations. Staff and/or its contractors shall post signs and/or place fence around the site to restrict access of vehicles and equipment unrelated to drilling operations.</p> <p>Biological 3 - A biological monitor will be present during initial ground disturbance and site construction activities.</p> <p>Biological 4. If San Joaquin kit foxes become established within the proposed project site or buffer area prior to project implementation,</p>	<p>Prior to initiation of construction activities.</p> <p>Ongoing during project activities.</p> <p>Ongoing during initial ground disturbance and construction.</p> <p>Ongoing during project activities.</p>	<p>Division and Naftex.</p> <p>Division and Naftex.</p> <p>Division and Naftex.</p> <p>Division and Naftex.</p>	<p>Submission of pre-activity biological clearance to Division.</p> <p>Site inspection by environmental monitor.</p> <p>Site inspection by environmental monitor.</p> <p>Site inspection by environmental monitor.</p>	<p>Require as condition of approval.</p>	

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	<p>Naftex will implement the measures contained in the United States Fish and Wildlife Service’s (USFWS) “Standardized recommendations for protection of the San Joaquin kit fox prior to or during ground disturbance” (USFWS 2011). Naftex will implement the following measures:</p> <p>a. If kit fox dens have become established within 200 feet of the construction area prior to project implementation that may be indirectly impacted by construction activities exclusion zones shall be established prior to construction by a qualified biologist and dens shall not be disturbed in any way. Exclusion zone fencing should include untreated wood particle-board, silt fencing, orange construction fencing or other fencing as approved by the USFWS and CDFW. Exclusion zones shall be roughly circular with a radius of the following distances measured outward from entrance; potential den 50 feet, and known den 100 feet. Fencing must contain openings for kit fox ingress/egress and keeps humans and equipment out. If a natal/pupping den is discovered within a project site or within 200 feet of the project site, the USFWS and CDFW shall be immediately notified and under no circumstances should the den be disturbed or destroyed without prior authorization. If the preconstruction survey reveals an active natal pupping or new information, the project applicant should contact the USFWS and CDFW immediately to obtain the necessary take authorization/permit. If the take authorization/permit has already been issued,</p>					

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	<p>then the biologist may proceed with den destruction within the project boundary, except natal/pupping den which may not be destroyed while occupied. A take authorization/permit is required to destroy these dens even after they are vacated. Protective exclusion zones can be placed around all known and potential dens which occur outside the project footprint.</p> <p>b. San Joaquin Kit fox exclusion zone barriers shall be maintained until all construction and drilling activities have been completed, and then removed. If specified exclusion zones cannot be observed for any reason, USFWS and CDFW shall be contacted for guidance prior to ground disturbing activities at or near the subject den. In the event that USFWS and CDFW concur that an occupied San Joaquin kit fox den would be unavoidably destroyed by a planned project action, procedures detailed in the USFWS Standardized Recommendations for protection of the San Joaquin Kit Fox (USFWS 2011) shall be implemented. Den excavation shall be undertaken only by a qualified biologist pursuant to USFWS and CDFW authorization and direction for excavation of kit fox dens.</p> <p>c. In the event that a San Joaquin kit fox is injured or killed, the incident shall immediately be reported to the project biologist. The project biologist shall contact CDFW immediately in the case of a dead, injured or entrapped kit fox. The CDFW</p>					

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	<p>contact for immediate assistance is State Dispatch at (916)445-0045. They will contact the local warden or the CDFW Central Region office at (559) 243-4014. The USFWS should be contacted at Endangered Species Division, (916) 414-6620 or (916) 414-6600. The USFWS and CDFW shall be notified in writing within three (3) working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, 2800 Cottage Way, Suite W2605, Sacramento, California 95825-1846. The CDFW contact is the Central Region office at (559) 243-4014. New sightings of kit fox shall be reported to the CNDDDB. A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed will also be provided to the USFWS as well.</p> <p>d. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4 inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe shall not be moved until</p>					

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	<p>the USFWS and CDFW has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.</p> <p>e. Limited destruction of kit fox dens may be allowed, if avoidance is not a reasonable alternative, provided the following procedures are observed. Destruction of any known or natal/pupping kit fox den requires take authorization/permit from the USFWS and CDFW. Destruction of the den shall be accomplished by careful excavation until it is certain that no kit foxes are inside. The den shall be fully excavated, filled with dirt and compacted to ensure that kit foxes cannot reenter or use the den during the construction period. If at any point during excavation, a kit fox is discovered inside the den, the excavation activity shall cease immediately and monitoring of the den as described above shall be resumed. Destruction of the den may be completed when in the judgment of the biologist, the animal has escaped, without further disturbance, from the partially destroyed den. Natal or pupping dens which are occupied cannot be destroyed until the pups and adults have vacated and then only after consultation with the USFWS and CDFW. Known dens occurring within the footprint of the activity must be monitored for three (3) days with tracking medium or an infra-red beam camera to determine the current use. If no kit fox activity is observed during</p>					

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	<p>this period, the den should be destroyed immediately to preclude subsequent use. If kit fox activity is observed at the den during this period, the den should be monitored for at least five (5) consecutive days from the time of the observation to allow any resident animal to move to another den during its normal activity. Use of the den can be discouraged during this period by partially plugging its entrances(s) with soil in such a manner that any resident animal can escape easily. Only when the den is determined to be unoccupied may the den be excavated under the direction of the biologist. If the animal is still present after five (5) or more consecutive days of plugging and monitoring, the den may have to be excavated when, in the judgment of a biologist, it is temporarily vacant, for example during the animal's normal foraging activities. The USFWS and CDFW encourage hand excavation, but realize that soil conditions may necessitate the use of excavating equipment. However, extreme caution must be exercised. For potential dens, if a take authorization/permit has been obtained, den destruction may proceed without monitoring, unless other restrictions were issued with the take authorization/permit. If no take authorization/permit has been issued, then potential dens shall be monitored as if they were known dens. If any den was considered to be a potential den, but is later determined during monitoring or destruction to be currently, or previously used by kit fox (e.g., if kit fox sign is found inside), then all</p>					

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	<p>construction activities shall cease and the USFWS and CDFW shall be notified immediately.</p> <p>Biological 5. The burrowing owl nesting season begins as early as February 1 and continues through August 31. If burrowing owls are located or become established within the project site or exclusion areas at the time of the final pre-activity biological survey and are using burrows within the project site or exclusion area, a qualified biologist will consult with CDFW; the following measures shall be implemented:</p> <p>a. Naftex will follow recommendations included in CDFG's Staff Report on Burrowing Owl Mitigation (CDFW 2012) including avoidance of occupied burrows by implementation of a no-construction zone of a minimum distance of 500 meters, unless a qualified biologist approved by CDFW verifies through non-invasive methods that either : 1) the birds have not begun egg laying and incubation; or 2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.</p> <p>b. On-site passive relocation of burrowing owls shall be implemented if owls are using the burrows after August 31. Passive relocation is defined as encouraging owls to move from occupied burrows to alternate natural or artificial burrows that are beyond 150 feet from the impact zone and that are</p>	<p>Ongoing during project activities</p>	<p>Division and Naftex</p>	<p>Submission of pre-activity biological clearance to Division.</p>	<p>Require as condition of approval</p>	

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	<p>within or contiguous to a minimum of 6.5 acres of foraging habitat for each pair of relocated owls. Relocation of owls shall only be implemented during the non-breeding season.</p> <p>c. Owls shall be excluded from burrows in the immediate impact zone and within a 150 feet exclusion zone by installing one-way doors in burrow entrances. One-way doors shall be left in place 48 hours to insure owls have left the burrow before excavation. One alternate natural or artificial burrow shall be provided for each burrow that will be excavated in the project impact zone.</p> <p>d. The project area shall be monitored daily for one week to confirm owl use of alternate burrows before excavating burrows in the immediate impact zone. Whenever possible, burrows shall be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe or burlap bags shall be inserted into burrow tunnels to prevent tunnel collapse while soil is excavated around that portion of a tunnel.</p> <p>Biological 6. A project representative shall establish restrictions on project-related traffic to approved project areas, storage areas, staging and parking areas via signage. Off-road traffic outside of designated project areas shall be prohibited. Project-related traffic shall observe a 15 mph speed limit in all project areas except on county roads and state and federal highways to</p>	Ongoing during project activities.	Division and Naftex	Site inspection by environmental monitor.	Require as condition of approval.	

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	<p>avoid impacts to special-status and common wildlife species.</p> <p>Biological 7 - Project activities during the drilling phase of the proposed project shall be scheduled to avoid evening hours, as feasible, to avoid special-status wildlife species that are active in the nighttime.</p> <p>Biological 8 - All vehicle operators shall check under vehicles and equipment before moving them if they have remained parked and shut off for 10 minutes or longer.</p> <p>Biological 9 - Hazardous materials, fuels, lubricants, and solvents that spill accidentally during project-related activities shall be cleaned up and removed from the project as soon as possible according to applicable federal, state and local regulations.</p> <p>Biological 10 - All equipment storage and parking during site development and operation shall be confined to the project sites or to previously disturbed off site areas that are not suitable habitat for listed species.</p> <p>Biological 11 - Environmental Awareness Training shall be presented to all personnel working on the proposed project sites. Training shall consist of a brief presentation in which biologists knowledgeable of endangered species biology and legislative protection shall explain endangered species concerns. Training shall include a discussion of special-status plants and sensitive</p>	<p>Ongoing during project activities.</p> <p>Ongoing during project activities.</p> <p>Ongoing during project activities.</p> <p>Ongoing during project activities.</p> <p>Prior to initiation of construction activities.</p>	<p>Division and Naftex.</p> <p>Division and Naftex</p> <p>Division and Naftex.</p> <p>Division and Naftex.</p> <p>Division and Naftex.</p>	<p>Site inspection by environmental monitor</p> <p>Inspections by environmental monitor.</p> <p>Inspections by environmental monitor.</p> <p>Site inspection by environmental monitor.</p> <p>Sign in sheets for Environmental Awareness Training Records will be provided to the Division upon completion.</p>	<p>Require as condition of approval.</p>	

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	<p>wildlife species. Species biology, habitat needs, status under the Endangered Species Act, and measures being incorporated for the protection of these species and their habitats shall also be discussed.</p> <p>Biological 12 - If wildlife proof barricade fencing is not used at the proposed well sites, all excavated steep-walled holes or trenches in excess of three feet in depth shall be provided with one or more escape ramps constructed of earth fill to prevent entrapment of endangered species or other animals during the construction phase. Ramps shall be located at no greater than 1,000-foot intervals (for pipelines etc.) and at not less than a 45-degree angles. Trenches shall be inspected for entrapped wildlife each morning prior to onset of construction activities and immediately prior to the end of each working day. Before such holes or trenches are filled they shall be inspected thoroughly for entrapped animals. Any animals discovered shall be allowed to escape voluntarily without harassment before construction activities resume, or removed from the trench or hole by a qualified biologist and allowed to escape unimpeded.</p> <p>Biological 13 - All construction pipes, culverts, or similar structures stored at a construction site overnight having a diameter of four inches or greater shall be inspected thoroughly for wildlife species before being buried, capped, or otherwise used or moved in any way. Pipes laid in trenches overnight shall be capped. If during construction a wildlife species is discovered inside a pipe, that</p>	<p>Ongoing during project activities.</p> <p>Ongoing during project activities.</p>	<p>Division and Naftex.</p> <p>Division and Naftex.</p>	<p>Site inspection by environmental monitor.</p> <p>Site inspection by environmental monitor.</p>	<p>Require as condition of approval.</p> <p>Require as condition of approval.</p>	

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	<p>section of pipe shall not be moved or, if necessary, moved only once to remove it from the path of construction activity, until the wildlife species has escaped.</p> <p>Biological 14 - All food-related trash items such as wrappers, cans, bottles or food scraps generated during construction or during subsequent operation shall be disposed of only in closed containers and regularly removed from the project sites. Food items may attract wildlife species onto a project site, consequently exposing such animals to increased risk of injury or mortality. No deliberate feeding of wildlife shall be allowed.</p> <p>Biological 15 - To prevent harassment or mortality of wildlife species via predation, or destruction of their dens or nests, no domestic pets shall be permitted on the proposed project sites.</p> <p>Biological 16 - Use of rodenticides and herbicides on the project sites shall be permitted only as part of a USFWS and CDFW approved management plan unless such use is otherwise approved on a case-by-case basis. This is necessary to prevent primary or secondary poisoning of endangered species using adjacent habitats or depletion of prey upon which sensitive wildlife may depend.</p>	<p>Ongoing during project activities.</p> <p>Ongoing during project activities.</p> <p>Ongoing during project activities.</p>	<p>Division and Naftex.</p> <p>Division and Naftex.</p> <p>Division and Naftex.</p>	<p>Provide trash containers. Site inspection by environmental monitor.</p> <p>Site inspection by environmental monitor.</p> <p>Site inspection by environmental monitor.</p>	<p>Require as condition of approval.</p> <p>Require as condition of approval.</p> <p>Require as condition of approval.</p>	
<b>V. Cultural Resources</b>						
a. Cause a substantial adverse		Ongoing during project				

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MITIGATION MONITORING AND REPORTING PLAN**

Environmental Impact	Mitigation Measures	Timing of Monitoring Requirement	Responsibility for Compliance	Method for Compliance	Enforcement	Checkoff Date/Initials
<p>change in the significance of a historical resource as defined in Section 15064.5?</p> <p>b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?</p> <p>c. Directly or indirectly destroy a unique paleontological resources or site or unique geologic feature?</p> <p>d. Disturb any human remains, including those interred outside of formal cemeteries?</p>	<p>Cultural -1. In the unlikely event archeological resources are identified on the project site, all ground disturbing activities will cease and a qualified archaeologist will be retained by Naftex to assess the significance of any find. The archaeologist will have the authority to stop or divert the construction excavation as necessary. The archaeologist will evaluate the find in conformance with section 15064.5 of CEQA. A plan to mitigate any adverse impacts will be prepared by the archaeologist and contain procedures to follow. Work may proceed on the site once evaluation of the find is complete.</p> <p>Cultural 2 – In the unlikely event paleontological resources are identified on the project site, a qualified paleontologist will be retained by Naftex to assess the significance of any find and will have the authority to stop or divert the construction excavation as necessary. A plan to mitigate any adverse impacts will be prepared by the paleontologist and contain procedures to follow. Work may proceed on the site once evaluation of the find is complete.</p> <p>Cultural 3 – In the unlikely event human remains are discovered during construction of the site, site personnel will contact the County Coroner and stop work as required by Public Resources Code §5097.98-99 and Health and Safety Code §7050.5. If the remains are determined to be Native American, the County Coroner will notify the NAHC in accordance with PRC §5097.98. Naftex shall, in consultation with the identified descendants of the remains and/or NAHC,</p>	<p>activities.</p> <p>Ongoing during project activities.</p> <p>Ongoing during project activities.</p>	<p>Division and Naftex.</p> <p>Division and Naftex.</p> <p>Division and Naftex.</p>	<p>Include archeological awareness in environmental awareness training.</p> <p>Include paleontological awareness in environmental awareness training.</p> <p>Include archeological awareness in environmental awareness training.</p>	<p>Require as condition of approval.</p> <p>Require as condition of approval.</p> <p>Require as condition of approval.</p>	

**Bloemer and Kirschenman Exploratory Oil and Gas Project  
MITIGATION MONITORING AND REPORTING PLAN**

Environmental Impact	Mitigation Measures	Timing of Monitoring Requirement	Responsibility for Compliance	Method for Compliance	Enforcement	Checkoff Date/Initials
<b>VIII. Hazards &amp; Hazardous Materials</b>						
<p>a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?</p> <p>b. Create a significant hazard to public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?</p>	<p>Hazards 1. All hazardous materials such as diesel fuel shall be stored according to the California Code of Regulations (CCR) Title 22, 23, 26 &amp; 27 and California Fire Codes (CFR) Title 24 and Kern County hazardous materials ordinance and Material Safety Data Sheets shall be on each site. Waste materials shall be managed properly in accordance with requirements that comply with or given authority by the Code of Federal Regulations (40 CFR) and refined in California through CCR, Title 14, 22, 23, 26 &amp; 27. Training shall be provided to all personnel involved in handling of hazardous materials/waste.</p> <p>Hazards 2. In order to minimize potential impacts associated with a blowout, Naftex shall comply with CCR Title 14, Division 2, Chapter 4, Articles 3 and 4, specifically Article 4, 1941-1942. Requirements for well casing design and blowout prevention equipment are regulated by Division. Division engineers shall be notified for required tests and other operations.</p> <p>Hazards 3. A Spill Contingency Plan shall be required in accordance with CCR § 1772.9 and a copy of the plan shall be kept on site. The plan shall discuss methods to avoid and/or minimize impacts in the event of a release. The purpose of</p>	<p>Ongoing during project activities.</p> <p>Ongoing during drilling and completion activities for each well.</p> <p>Prior to construction activities.</p>	<p>Division and Naftex.</p> <p>Division and Naftex.</p> <p>Division and Naftex.</p>	<p>Include handling of hazardous materials/wastes training in environmental awareness training. Inspection by environmental monitor.</p> <p>Inspection by Division.</p> <p>Spill Contingency Plan will be kept on site.</p>	<p>Require as condition of approval.</p> <p>Require as a condition of approval.</p> <p>Require as a condition of approval.</p>	

**Bloemer and Kirschenman Exploratory Oil and Gas Project  
MITIGATION MONITORING AND REPORTING PLAN**

Environmental Impact	Mitigation Measures	Timing of Monitoring Requirement	Responsibility for Compliance	Method for Compliance	Enforcement	Checkoff Date/Initials
	<p>the plan shall be to ensure that adequate containment would be provided to control accidental spills, that adequate spill response equipment and absorbents would be readily available, and that personnel would be properly trained in how to control and clean up any spills.</p> <p>Hazards 4 - All above ground storage tanks will be located within a bermed area which provides a storage volume of at least 110% of the storage volume of the largest tank. Daily inspections of the above ground storage tanks will be conducted and an inspection log will be maintained for review by regulatory agency personnel. The inspection log will also document corrective actions taken, if necessary.</p> <p>Hazards 5. Fluid disposal shall follow RWQCB regulations (CCR Title 23 Waters).</p> <p>Hazards 6. If project development uncovers any previously unknown oil, gas, or injection wells, the Division shall be notified. If unrecorded wells are uncovered during excavation or grading, remedial plugging operations may be required.</p>	<p>Ongoing during project activities.</p> <p>Ongoing during project activities.</p> <p>Ongoing during project activities.</p>	<p>Division and Naftex.</p> <p>Division and Naftex.</p> <p>Division and Naftex.</p>	<p>Inspection of environmental monitor.</p> <p>Inspection by environmental monitor</p> <p>Inspection by environmental monitor and notification of Division if unknown wells discovered.</p>	<p>Require as a condition of approval.</p> <p>Require as a condition of approval.</p> <p>Require as a condition of approval.</p>	
<b>Hydrology and Water Quality</b>						
e. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional	Hydrology 1 – Naftex will provide a copy of the submitted NOI and verification of an approved erosivity waiver from the SWRCB to the Division prior to initiation of the project.	Prior to project initiation.	Division and Naftex.	Except as where otherwise noted, the environmental monitor shall verify the mitigation measures and send documentation to the	Require as a condition of project approval.	

**Bloemer and Kirschenman Exploratory Oil and Gas Project  
MITIGATION MONITORING AND REPORTING PLAN**

<b>Environmental Impact</b>	<b>Mitigation Measures</b>	<b>Timing of Monitoring Requirement</b>	<b>Responsibility for Compliance</b>	<b>Method for Compliance</b>	<b>Enforcement</b>	<b>Checkoff Date/ Initials</b>
sources of polluted runoff?				Division's CEQA Unit at 801 K Street, MS 18-05, Sacramento, CA 95841		

ATTACHMENT B

AIR CALCULATIONS

# ATTACHMENTS

## Naftex Project

1. Copies of Emission Report and Input Data for Site Preparation
2. Copies of Emission Report and Input Data for Drilling
3. Copies of Emission Report and Input Data for Well Completion
4. Evaluation of GHG Emissions
5. Copies of Emission Report and Input Data for Equipment Installation
6. Copies of Emission Report and Input Data for Production
7. Copies of Risk Prioritization Spreadsheets (Short-Term)
8. Copies of Emission Report and Input Data for Plugging & Abandonment

# Attachment 1

Copies of Emission Reports and Input Data for Site Preparation  
Based on the Road Construction Model

## Road Construction Emissions Model, Version 6.3.2

Emission Estimates for -> <b>Naftex Site Prep</b>											
Project Phases ( <b>English Units</b> )	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	CO2 (lbs/day)	
Grubbing/Land Clearing	1.6	13.8	9.2	7.7	0.6	7.1	2.0	0.5	1.5	2,206.2	
Grading/Excavation	1.1	12.8	8.2	7.5	0.4	7.1	1.8	0.3	1.5	2,483.6	
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-	
Paving	-	-	-	-	-	-	-	-	-	-	
<b>Maximum (pounds/day)</b>	1.6	13.8	9.2	7.7	0.6	7.1	2.0	0.5	1.5	2,483.6	
<b>Total (tons/construction project)</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	

Notes: Project Start Year -> 2012  
 Project Length (months) -> 0  
 Total Project Area (acres) -> 1  
 Maximum Area Disturbed/Day (acres) -> 1  
 Total Soil Imported/Exported (yd<sup>3</sup>/day)-> 0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

Emission Estimates for -> <b>Naftex Site Prep</b>											
Project Phases ( <b>Metric Units</b> )	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	Total PM10 (kgs/day)	Exhaust PM10 (kgs/day)	Fugitive Dust PM10 (kgs/day)	Total PM2.5 (kgs/day)	Exhaust PM2.5 (kgs/day)	Fugitive Dust PM2.5 (kgs/day)	CO2 (kgs/day)	
Grubbing/Land Clearing	0.7	6.3	4.2	3.5	0.3	3.2	0.9	0.2	0.7	1,002.8	
Grading/Excavation	0.5	5.8	3.7	3.4	0.2	3.2	0.8	0.1	0.7	1,128.9	
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-	
Paving	-	-	-	-	-	-	-	-	-	-	
<b>Maximum (kilograms/day)</b>	0.7	6.3	4.2	3.5	0.3	3.2	0.9	0.2	0.7	1,128.9	
<b>Total (megagrams/construction project)</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	

Notes: Project Start Year -> 2012  
 Project Length (months) -> 0  
 Total Project Area (hectares) -> 0  
 Maximum Area Disturbed/Day (hectares) -> 0  
 Total Soil Imported/Exported (meters<sup>3</sup>/day)-> 0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

# Road Construction Emissions Model

Version 6.3.2

## Data Entry Worksheet

Note: Required data input sections have a yellow background.

Optional data input sections have a blue background. Only areas with a

yellow or blue background can be modified. Program defaults have a white background.

The user is required to enter information in cells C10 through C25.



### Input Type

Project Name	Naftex Site Prep	
Construction Start Year	2013	Enter a Year between 2005 and 2025 (inclusive)
Project Type	1	1 New Road Construction 2 Road Widening 3 Bridge/Overpass Construction
Project Construction Time	0.1	months
Predominant Soil/Site Type: Enter 1, 2, or 3	2	1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock
Project Length		miles
Total Project Area	0.7	acres
Maximum Area Disturbed/Day	0.7	acres
Water Trucks Used?	1	1. Yes 2. No
Soil Imported	0.0	yd <sup>3</sup> /day
Soil Exported	0.0	yd <sup>3</sup> /day
Average Truck Capacity	20.0	yd <sup>3</sup> (assume 20 if unknown)

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells C34 through C37.

Construction Periods	User Override of	Program
	Construction Months	Calculated Months
Grubbing/Land Clearing	0.07	0.01
Grading/Excavation	0.03	0.05
Drainage/Utilities/Sub-Grade		0.03
Paving		0.02
<b>Totals</b>	<b>0.10</b>	<b>0.10</b>

2005	%	2006	%	2007
0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00

Hauling emission default values can be overridden in cells C45 through C46.

<b>Soil Hauling Emissions</b>		User Override of					
User Input	Soil Hauling Defaults	Default Values					
Miles/round trip	100.00	30					
Round trips/day	2.00	0					
Vehicle miles traveled/day (calculated)			200				
Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2	
Emission rate (grams/mile)	0.93	11.59	6.20	0.45	0.38	1868.60	
Emission rate (grams/trip)	10.89	7.79	185.47	0.02	0.01	209.04	
Pounds per day	0.4	5.1	2.7	0.2	0.2	823.2	
Tons per construction period	0.00	0.00	0.00	0.00	0.00	0.30	

Worker commute default values can be overridden in cells C60 through C65.

<b>Worker Commute Emissions</b>		User Override of Worker					
	Commute Default Values	Default Values					
Miles/ one-way trip	50.00	20					
One-way trips/day	4.00	2					
No. of employees: Grubbing/Land Clearing	6.00	3					
No. of employees: Grading/Excavation		5					
No. of employees: Drainage/Utilities/Sub-Grade		5					
No. of employees: Paving		4					
	ROG	NOx	CO	PM10	PM2.5	CO2	
Emission rate - Grubbing/Land Clearing (grams/mile)	0.135	0.244	2.515	0.033	0.018	426.920	
Emission rate - Grading/Excavation (grams/mile)	0.132	0.235	2.427	0.033	0.018	426.640	
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.000	0.000	0.000	0.000	0.000	0.000	
Emission rate - Paving (grams/mile)	0.000	0.000	0.000	0.000	0.000	0.000	
Emission rate - Grubbing/Land Clearing (grams/trip)	0.839	0.359	8.253	0.130	0.012	192.050	
Emission rate - Grading/Excavation (grams/trip)	0.809	0.343	7.916	0.130	0.012	192.280	
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.000	0.000	0.000	0.000	0.000	0.000	
Emission rate - Paving (grams/trip)	0.000	0.000	0.000	0.000	0.000	0.000	
Pounds per day - Grubbing/Land Clearing	0.446	0.683	7.520	0.101	0.049	1148.728	
Tons per const. Period - Grub/Land Clear	0.000	0.001	0.006	0.000	0.000	0.842	
Pounds per day - Grading/Excavation	0.434	0.657	7.252	0.101	0.049	1148.012	
Tons per const. Period - Grading/Excavation	0.000	0.000	0.003	0.000	0.000	0.421	
Pounds per day - Drainage/Utilities/Sub-Grade	0.000	0.000	0.000	0.000	0.000	0.000	
Tons per const. Period - Drain/Util/Sub-Grade	0.000	0.000	0.000	0.000	0.000	0.000	
Pounds per day - Paving	0.000	0.000	0.000	0.000	0.000	0.000	
Tons per const. Period - Paving	0.000	0.000	0.000	0.000	0.000	0.000	
tons per construction period	0.000	0.001	0.008	0.000	0.000	1.263	

Water truck default values can be overridden in cells C91 through C93 and E91 through E93.

Water Truck Emissions	User Override of	Program Estimate of	User Override of Truck	Default Values		
	Default # Water Trucks	Number of Water Trucks	Miles Traveled/Day	Miles Traveled/Day		
Grubbing/Land Clearing - Exhaust	1.00	1	20.00	40		
Grading/Excavation - Exhaust		1		40		
Drainage/Utilities/Subgrade		1		40		
	<b>ROG</b>	<b>NOx</b>	<b>CO</b>	<b>PM10</b>	<b>PM2.5</b>	<b>CO2</b>
Emission rate - Grubbing/Land Clearing (grams/mile)	0.97	12.07	6.48	0.47	0.39	1866.20
Emission rate - Grading/Excavation (grams/mile)	0.93	11.59	6.20	0.45	0.38	1868.60
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grubbing/Land Clearing	0.04	0.53	0.29	0.02	0.02	82.21
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.03
Pound per day - Grading/Excavation	0.08	1.02	0.55	0.04	0.03	164.63
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.06
Pound per day - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00

Fugitive dust default values can be overridden in cells C110 through C112.

Fugitive Dust	User Override of Max	Default	PM10	PM10	PM2.5	PM2.5
	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period
Fugitive Dust - Grubbing/Land Clearing		0.71	7.1	0.0	1.5	0.0
Fugitive Dust - Grading/Excavation		0.71	7.1	0.0	1.5	0.0
Fugitive Dust - Drainage/Utilities/Subgrade		0	0.0	0.0	0.0	0.0

## Off-Road Equipment Emissions

Grubbing/Land Clearing		Default	ROG	CO	NOx	PM10	PM2.5	
Override of Default Number of Vehicles	Number of Vehicles	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	
	<i>Program-estimate</i>							
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	
		Air Compressors	0.00	0.00	0.00	0.00	0.00	
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	
		Cranes	0.00	0.00	0.00	0.00	0.00	
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	
		Excavators	0.00	0.00	0.00	0.00	0.00	
		Forklifts	0.00	0.00	0.00	0.00	0.00	
		Generator Sets	0.00	0.00	0.00	0.00	0.00	
1.00		Graders	0.85	3.85	6.60	0.38	0.35	
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	
		Pavers	0.00	0.00	0.00	0.00	0.00	
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	
		Pumps	0.00	0.00	0.00	0.00	0.00	
		Rollers	0.00	0.00	0.00	0.00	0.00	
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	
0.00		1 Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	
0.00		1 Scrapers	0.00	0.00	0.00	0.00	0.00	
		0 Signal Boards	0.00	0.00	0.00	0.00	0.00	
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	
1.00		Tractors/Loaders/Backhoes	0.21	2.15	1.39	0.06	0.06	
		Trenchers	0.00	0.00	0.00	0.00	0.00	
		Welders	0.00	0.00	0.00	0.00	0.00	
		Grubbing/Land Clearing	pounds per day	1.1	6.0	8.0	0.4	0.4
		Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.0

Grading/Excavation		Default	ROG	CO	NOx	PM10	PM2.5
Override of Default Number of Vehicles	Number of Vehicles <i>Program-estimate</i>	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00
	0	Cranes	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00
	0.00	1 Excavators	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00
	0.00	1 Graders	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00
	0	Other Construction Equipment	0.03	0.13	0.19	0.02	0.01
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00
		Plate Compactors	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00
	0.00	1 Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00
	0.00	1 Scrapers	0.00	0.00	0.00	0.00	0.00
		0 Signal Boards	0.00	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00
	1.00	Tractors/Loaders/Backhoes	0.19	2.14	1.25	0.05	0.04
		Trenchers	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00
	Grading/Excavation	pounds per day	0.2	2.3	1.4	0.1	0.1
	Grading	tons per phase	0.0	0.0	0.0	0.0	0.0

Drainage/Utilities/Subgrade Override of Default Number of Vehicles	Default		ROG	CO	NOx	PM10	PM2.5
	Number of Vehicles		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
	<i>Program-estimate</i>						
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00
0.00	1	Graders	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00
0.00	1	Plate Compactors	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00
0.00	1	Scrapers	0.00	0.00	0.00	0.00	0.00
	0	Signal Boards	0.00	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00
0.00	1	Trenchers	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00
	Drainage	pounds per day	0.0	0.0	0.0	0.0	0.0
	Drainage	tons per phase	0.0	0.0	0.0	0.0	0.0

Paving	Default		ROG	CO	NOx	PM10	PM2.5
	Number of Vehicles	Type					
Override of Default Number of Vehicles	Program-estimate		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00
		Graders	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00
	0.00	1 Pavers	0.00	0.00	0.00	0.00	0.00
	0.00	1 Paving Equipment	0.00	0.00	0.00	0.00	0.00
		Plate Compactors	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00
	0.00	1 Rollers	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00
		Scrapers	0.00	0.00	0.00	0.00	0.00
		0 Signal Boards	0.00	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00
	Paving	pounds per day	0.0	0.0	0.0	0.0	0.0
	Paving	tons per phase	0.0	0.0	0.0	0.0	0.0
<b>Total Emissions all Phases (tons per construction period) ==&gt;</b>			<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

Equipment default values for horsepower, load factor, and hours/day can be overridden in cells C285 through C317, E285 through E317, and G285 through G317.

Equipment	Default Values Horsepower	Default Values Load Factor	Default Values Hours/day
Aerial Lifts	60	0.46	8
Air Compressors	106	0.48	8
Bore/Drill Rigs	291	0.75	8
Cement and Mortar Mixers	10	0.56	8
Concrete/Industrial Saws	19	0.73	8
Cranes	399	0.43	8
Crushing/Proc. Equipment	142	0.78	8
Excavators	168	0.57	8
Forklifts	145	0.30	8
Generator Sets	549	0.74	8
Graders	174	0.61	8
Off-Highway Tractors	267	0.65	8
Off-Highway Trucks	479	0.57	8
Other Construction Equipment	75	0.62	8
Other General Industrial Equipment	238	0.51	8
Other Material Handling Equipment	191	0.59	8
Pavers	100	0.62	8
Paving Equipment	104	0.53	8
Plate Compactors	8	0.43	8
Pressure Washers	1	0.60	8
Pumps	53	0.74	8
Rollers	95	0.56	8
Rough Terrain Forklifts	93	0.60	8
Rubber Tired Dozers	357	0.59	8
Rubber Tired Loaders	157	0.54	8
Scrapers	313	0.72	8
Signal Boards	20	0.78	8
Skid Steer Loaders	44	0.55	8
Surfacing Equipment	362	0.45	8
Sweepers/Scrubbers	91	0.68	8
Tractors/Loaders/Backhoes	108	0.55	8
Trenchers	63	0.75	8
Welders	45	0.45	8

0

END OF DATA ENTRY SHEET

## Attachment 2

Copies of Emission Reports and Input Data for Drilling  
Based on the Road Construction Model

## Road Construction Emissions Model, Version 6.3.2

Emission Estimates for -> <b>Naftex Drilling</b>										
Project Phases ( <b>English Units</b> )	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	25.7	124.3	288.3	9.0	9.0	-	8.1	8.1	-	43,210.9
Grading/Excavation	-	-	-	-	-	-	-	-	-	-
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
<b>Maximum (pounds/day)</b>	25.7	124.3	288.3	9.0	9.0	-	8.1	8.1	-	43,210.9
<b>Total (tons/construction project)</b>	0.0	0.1	0.2	0.0	0.0	-	0.0	0.0	-	31.6

Notes: Project Start Year -> 2012  
 Project Length (months) -> 0  
 Total Project Area (acres) -> 1  
 Maximum Area Disturbed/Day (acres) -> 0  
 Total Soil Imported/Exported (yd<sup>3</sup>/day)-> 0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

Emission Estimates for -> <b>Naftex Drilling</b>										
Project Phases ( <b>Metric Units</b> )	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	Total PM10 (kgs/day)	Exhaust PM10 (kgs/day)	Fugitive Dust PM10 (kgs/day)	Total PM2.5 (kgs/day)	Exhaust PM2.5 (kgs/day)	Fugitive Dust PM2.5 (kgs/day)	CO2 (kgs/day)
Grubbing/Land Clearing	11.7	56.5	131.1	4.1	4.1	-	3.7	3.7	-	19,641.3
Grading/Excavation	-	-	-	-	-	-	-	-	-	-
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
<b>Maximum (kilograms/day)</b>	11.7	56.5	131.1	4.1	4.1	-	3.7	3.7	-	19,641.3
<b>Total (megagrams/construction project)</b>	0.0	0.1	0.2	0.0	0.0	-	0.0	0.0	-	28.7

Notes: Project Start Year -> 2012  
 Project Length (months) -> 0  
 Total Project Area (hectares) -> 0  
 Maximum Area Disturbed/Day (hectares) -> 0  
 Total Soil Imported/Exported (meters<sup>3</sup>/day)-> 0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

# Road Construction Emissions Model

Version 6.3.2

## Data Entry Worksheet

Note: Required data input sections have a yellow background.

Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.

The user is required to enter information in cells C10 through C25.



### Input Type

Project Name	Naftex Drilling	
Construction Start Year	2013	Enter a Year between 2005 and 2025 (inclusive)
Project Type	1	1 New Road Construction 2 Road Widening 3 Bridge/Overpass Construction
Project Construction Time	0.1	months
Predominant Soil/Site Type: Enter 1, 2, or 3	2	1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock
Project Length		miles
Total Project Area	0.7	acres
Maximum Area Disturbed/Day	0.0	acres
Water Trucks Used?	1	1. Yes 2. No
Soil Imported	0.0	yd <sup>3</sup> /day
Soil Exported	0.0	yd <sup>3</sup> /day
Average Truck Capacity	20.0	yd <sup>3</sup> (assume 20 if unknown)

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells C34 through C37.

Construction Periods	User Override of	Program
	Construction Months	Calculated
	Months	Months
Grubbing/Land Clearing	0.07	0.01
Grading/Excavation		0.03
Drainage/Utilities/Sub-Grade		0.02
Paving		0.01
<b>Totals</b>	0.07	0.07

2005	%	2006	%	2007
0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00

Hauling emission default values can be overridden in cells C45 through C46.

<b>Soil Hauling Emissions</b>		User Override of					
User Input	Soil Hauling Defaults	Default Values					
Miles/round trip	100.00	30					
Round trips/day	4.50	0					
Vehicle miles traveled/day (calculated)			450				
Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2	
Emission rate (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	
Emission rate (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	
Pounds per day	0.0	0.0	0.0	0.0	0.0	0.0	
Tons per construction period	0.00	0.00	0.00	0.00	0.00	0.00	

Worker commute default values can be overridden in cells C60 through C65.

<b>Worker Commute Emissions</b>		User Override of Worker					
	Commute Default Values	Default Values					
Miles/ one-way trip	50.00	20					
One-way trips/day	20.00	2					
No. of employees: Grubbing/Land Clearing	6.00	0					
No. of employees: Grading/Excavation		0					
No. of employees: Drainage/Utilities/Sub-Grade		0					
No. of employees: Paving		0					
	ROG	NOx	CO	PM10	PM2.5	CO2	
Emission rate - Grubbing/Land Clearing (grams/mile)	0.135	0.244	2.515	0.033	0.018	426.920	
Emission rate - Grading/Excavation (grams/mile)	0.000	0.000	0.000	0.000	0.000	0.000	
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.000	0.000	0.000	0.000	0.000	0.000	
Emission rate - Paving (grams/mile)	0.000	0.000	0.000	0.000	0.000	0.000	
Emission rate - Grubbing/Land Clearing (grams/trip)	0.839	0.359	8.253	0.130	0.012	192.050	
Emission rate - Grading/Excavation (grams/trip)	0.000	0.000	0.000	0.000	0.000	0.000	
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.000	0.000	0.000	0.000	0.000	0.000	
Emission rate - Paving (grams/trip)	0.000	0.000	0.000	0.000	0.000	0.000	
Pounds per day - Grubbing/Land Clearing	2.228	3.414	37.601	0.505	0.244	5743.639	
Tons per const. Period - Grub/Land Clear	0.002	0.003	0.028	0.000	0.000	4.212	
Pounds per day - Grading/Excavation	0.000	0.000	0.000	0.000	0.000	0.000	
Tons per const. Period - Grading/Excavation	0.000	0.000	0.000	0.000	0.000	0.000	
Pounds per day - Drainage/Utilities/Sub-Grade	0.000	0.000	0.000	0.000	0.000	0.000	
Tons per const. Period - Drain/Util/Sub-Grade	0.000	0.000	0.000	0.000	0.000	0.000	
Pounds per day - Paving	0.000	0.000	0.000	0.000	0.000	0.000	
Tons per const. Period - Paving	0.000	0.000	0.000	0.000	0.000	0.000	
tons per construction period	0.002	0.003	0.028	0.000	0.000	4.212	

Water truck default values can be overridden in cells C91 through C93 and E91 through E93.

Water Truck Emissions	User Override of	Program Estimate of	User Override of Truck	Default Values		
	Default # Water Trucks	Number of Water Trucks	Miles Traveled/Day	Miles Traveled/Day		
Grubbing/Land Clearing - Exhaust	1.00	0	50.00	0		
Grading/Excavation - Exhaust		0		0		
Drainage/Utilities/Subgrade		0		0		
	<b>ROG</b>	<b>NOx</b>	<b>CO</b>	<b>PM10</b>	<b>PM2.5</b>	<b>CO2</b>
Emission rate - Grubbing/Land Clearing (grams/mile)	0.97	12.07	6.48	0.47	0.39	1866.20
Emission rate - Grading/Excavation (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grubbing/Land Clearing	0.11	1.33	0.71	0.05	0.04	205.53
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.07
Pound per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00
Pound per day - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00

Fugitive dust default values can be overridden in cells C110 through C112.

Fugitive Dust	User Override of Max	Default	PM10	PM10	PM2.5	PM2.5
	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period
Fugitive Dust - Grubbing/Land Clearing		0	0.0	0.0	0.0	0.0
Fugitive Dust - Grading/Excavation		0	0.0	0.0	0.0	0.0
Fugitive Dust - Drainage/Utilities/Subgrade		0	0.0	0.0	0.0	0.0

## Off-Road Equipment Emissions

Grubbing/Land Clearing		Default	ROG	CO	NOx	PM10	PM2.5	
Override of Default Number of Vehicles	Number of Vehicles	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	
	<i>Program-estimate</i>							
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	
		Air Compressors	0.00	0.00	0.00	0.00	0.00	
1.00		Bore/Drill Rigs	4.58	18.01	45.47	1.48	1.36	
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	
		Cranes	0.00	0.00	0.00	0.00	0.00	
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	
		Excavators	0.00	0.00	0.00	0.00	0.00	
1.00		Forklifts	0.15	0.76	1.10	0.07	0.06	
1.00		Generator Sets	5.77	22.00	78.80	2.25	2.07	
		Graders	0.00	0.00	0.00	0.00	0.00	
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	
1.00		Other Construction Equipment	3.79	13.14	42.19	1.39	1.28	
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	
		Pavers	0.00	0.00	0.00	0.00	0.00	
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	
1.00		Pumps	9.09	32.07	116.01	3.28	3.02	
		Rollers	0.00	0.00	0.00	0.00	0.00	
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	
	0	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	
	0	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	
	0	Scrapers	0.00	0.00	0.00	0.00	0.00	
	0	Signal Boards	0.00	0.00	0.00	0.00	0.00	
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	
		Trenchers	0.00	0.00	0.00	0.00	0.00	
		Welders	0.00	0.00	0.00	0.00	0.00	
		Grubbing/Land Clearing	pounds per day	23.4	86.0	283.6	8.5	7.8
		Grubbing/Land Clearing	tons per phase	0.0	0.1	0.2	0.0	0.0

Grading/Excavation		Default	ROG	CO	NOx	PM10	PM2.5
Override of Default Number of Vehicles	Number of Vehicles	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
	<i>Program-estimate</i>						
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00
	0	Cranes	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00
	0	Excavators	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00
	0	Graders	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00
	0	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00
		Plate Compactors	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00
	0	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00
	0	Scrapers	0.00	0.00	0.00	0.00	0.00
	0	Signal Boards	0.00	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00
	Grading/Excavation	pounds per day	0.0	0.0	0.0	0.0	0.0
	Grading	tons per phase	0.0	0.0	0.0	0.0	0.0

Drainage/Utilities/Subgrade Override of Default Number of Vehicles	Default	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day
	Number of Vehicles <i>Program-estimate</i>					
	Aerial Lifts	0.00	0.00	0.00	0.00	0.00
	Air Compressors	0.00	0.00	0.00	0.00	0.00
	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00
	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00
	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00
	Cranes	0.00	0.00	0.00	0.00	0.00
	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00
	Excavators	0.00	0.00	0.00	0.00	0.00
	Forklifts	0.00	0.00	0.00	0.00	0.00
	Generator Sets	0.00	0.00	0.00	0.00	0.00
0	Graders	0.00	0.00	0.00	0.00	0.00
	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00
	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00
	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00
	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00
	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00
	Pavers	0.00	0.00	0.00	0.00	0.00
	Paving Equipment	0.00	0.00	0.00	0.00	0.00
0	Plate Compactors	0.00	0.00	0.00	0.00	0.00
	Pressure Washers	0.00	0.00	0.00	0.00	0.00
	Pumps	0.00	0.00	0.00	0.00	0.00
	Rollers	0.00	0.00	0.00	0.00	0.00
	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00
	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00
	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00
0	Scrapers	0.00	0.00	0.00	0.00	0.00
0	Signal Boards	0.00	0.00	0.00	0.00	0.00
	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00
	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00
	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00
	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00
0	Trenchers	0.00	0.00	0.00	0.00	0.00
	Welders	0.00	0.00	0.00	0.00	0.00
	Drainage	pounds per day	0.0	0.0	0.0	0.0
	Drainage	tons per phase	0.0	0.0	0.0	0.0

Paving	Default		ROG	CO	NOx	PM10	PM2.5	
	Override of Default Number of Vehicles	Number of Vehicles <i>Program-estimate</i>	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Aerial Lifts	0.00	0.00	0.00	0.00	0.00
			Air Compressors	0.00	0.00	0.00	0.00	0.00
			Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00
			Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00
			Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00
			Cranes	0.00	0.00	0.00	0.00	0.00
			Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00
			Excavators	0.00	0.00	0.00	0.00	0.00
			Forklifts	0.00	0.00	0.00	0.00	0.00
			Generator Sets	0.00	0.00	0.00	0.00	0.00
			Graders	0.00	0.00	0.00	0.00	0.00
			Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00
			Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00
			Other Construction Equipment	0.00	0.00	0.00	0.00	0.00
			Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00
			Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00
		0	Pavers	0.00	0.00	0.00	0.00	0.00
		0	Paving Equipment	0.00	0.00	0.00	0.00	0.00
			Plate Compactors	0.00	0.00	0.00	0.00	0.00
			Pressure Washers	0.00	0.00	0.00	0.00	0.00
			Pumps	0.00	0.00	0.00	0.00	0.00
		0	Rollers	0.00	0.00	0.00	0.00	0.00
			Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00
			Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00
			Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00
			Scrapers	0.00	0.00	0.00	0.00	0.00
		0	Signal Boards	0.00	0.00	0.00	0.00	0.00
			Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00
			Surfacing Equipment	0.00	0.00	0.00	0.00	0.00
			Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00
			Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00
			Trenchers	0.00	0.00	0.00	0.00	0.00
			Welders	0.00	0.00	0.00	0.00	0.00
		Paving	pounds per day	0.0	0.0	0.0	0.0	0.0
		Paving	tons per phase	0.0	0.0	0.0	0.0	0.0
<b>Total Emissions all Phases (tons per construction period) ==&gt;</b>				<b>0.0</b>	<b>0.1</b>	<b>0.2</b>	<b>0.0</b>	<b>0.0</b>

Equipment default values for horsepower, load factor, and hours/day can be overridden in cells C285 through C317, E285 through E317, and G285 through G317.

Equipment		Default Values Horsepower		Default Values Load Factor		Default Values Hours/day
Aerial Lifts		60		0.46		8
Air Compressors		106		0.48		8
Bore/Drill Rigs	600.00	291		0.75	24.00	8
Cement and Mortar Mixers		10		0.56		8
Concrete/Industrial Saws		19		0.73		8
Cranes		399		0.43		8
Crushing/Proc. Equipment		142		0.78		8
Excavators		168		0.57		8
Forklifts		145		0.30		8
Generator Sets	600.00	549		0.74	24.00	8
Graders		174		0.61		8
Off-Highway Tractors		267		0.65		8
Off-Highway Trucks		479		0.57		8
Other Construction Equipment	530.00	75		0.62	24.00	8
Other General Industrial Equipment		238		0.51		8
Other Material Handling Equipment		191		0.59		8
Pavers		100		0.62		8
Paving Equipment		104		0.53		8
Plate Compactors		8		0.43		8
Pressure Washers		1		0.60		8
Pumps	1000.00	53		0.74	16.00	8
Rollers		95		0.56		8
Rough Terrain Forklifts		93		0.60		8
Rubber Tired Dozers		357		0.59		8
Rubber Tired Loaders		157		0.54		8
Scrapers		313		0.72		8
Signal Boards		20		0.78		8
Skid Steer Loaders		44		0.55		8
Surfacing Equipment		362		0.45		8
Sweepers/Scrubbers		91		0.68		8
Tractors/Loaders/Backhoes		108		0.55		8
Trenchers		63		0.75		8
Welders		45		0.45		8

2818

END OF DATA ENTRY SHEET

## Attachment 3

Copies of Emission Report and Input Data for Well Completion and  
Abandonment

## Road Construction Emissions Model, Version 6.3.2

Emission Estimates for -> Naftex Completion Rev 2										
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	2.9	16.3	24.9	0.9	0.9	-	0.8	0.8	-	5,237.2
Grading/Excavation	1.6	15.4	14.3	0.7	0.7	-	0.5	0.5	-	3,912.8
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
<b>Maximum (pounds/day)</b>	2.9	16.3	24.9	0.9	0.9	-	0.8	0.8	-	5,237.2
<b>Total (tons/construction project)</b>	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	-	5.3

Notes: Project Start Year -> 2013  
 Project Length (months) -> 0  
 Total Project Area (acres) -> 4  
 Maximum Area Disturbed/Day (acres) -> 0  
 Total Soil Imported/Exported (yd<sup>3</sup>/day)-> 0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

Emission Estimates for -> Naftex Completion Rev 2										
Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	Total PM10 (kgs/day)	Exhaust PM10 (kgs/day)	Fugitive Dust PM10 (kgs/day)	Total PM2.5 (kgs/day)	Exhaust PM2.5 (kgs/day)	Fugitive Dust PM2.5 (kgs/day)	CO2 (kgs/day)
Grubbing/Land Clearing	1.3	7.4	11.3	0.4	0.4	-	0.4	0.4	-	2,380.6
Grading/Excavation	0.7	7.0	6.5	0.3	0.3	-	0.2	0.2	-	1,778.5
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
<b>Maximum (kilograms/day)</b>	1.3	7.4	11.3	0.4	0.4	-	0.4	0.4	-	2,380.6
<b>Total (megagrams/construction project)</b>	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	-	4.8

Notes: Project Start Year -> 2013  
 Project Length (months) -> 0  
 Total Project Area (hectares) -> 2  
 Maximum Area Disturbed/Day (hectares) -> 0  
 Total Soil Imported/Exported (meters<sup>3</sup>/day)-> 0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

# Road Construction Emissions Model

Version 6.3.2

## Data Entry Worksheet

Note: Required data input sections have a yellow background.

Optional data input sections have a blue background. Only areas with a

yellow or blue background can be modified. Program defaults have a white background.

The user is required to enter information in cells C10 through C25.



### Input Type

Project Name	Naftex Completion Rev 2	
Construction Start Year	2013	Enter a Year between 2005 and 2025 (inclusive)
Project Type	1	1 New Road Construction 2 Road Widening 3 Bridge/Overpass Construction
Project Construction Time	0.1	months
Predominant Soil/Site Type: Enter 1, 2, or 3	2	1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock
Project Length		miles
Total Project Area	4.3	acres
Maximum Area Disturbed/Day	0.0	acres
Water Trucks Used?	2	1. Yes No 2.
Soil Imported	0.0	yd <sup>3</sup> /day
Soil Exported	0.0	yd <sup>3</sup> /day
Average Truck Capacity	20.0	yd <sup>3</sup> (assume 20 if unknown)

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells C34 through C37.

Construction Periods	User Override of		Program
	Construction Months	Months	Calculated
Grubbing/Land Clearing	0.07	0.01	0.01
Grading/Excavation	0.03	0.03	0.03
Drainage/Utilities/Sub-Grade		0.02	0.02
Paving		0.01	0.01
<b>Totals</b>	<b>0.10</b>	<b>0.07</b>	

2005	%	2006	%	2007
0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00

Please note: You have entered a different number of months than the project length shown in cell C13.

Hauling emission default values can be overridden in cells C45 through C46.

<b>Soil Hauling Emissions</b>		User Override of					
User Input		Soil Hauling Defaults	Default Values				
Miles/round trip		100.00	30				
Round trips/day		6.00	0				
Vehicle miles traveled/day (calculated)				600			
<b>Hauling Emissions</b>		<b>ROG</b>	<b>NOx</b>	<b>CO</b>	<b>PM10</b>	<b>PM2.5</b>	<b>CO2</b>
Emission rate (grams/mile)		0.84	10.25	5.45	0.40	0.33	1874.76
Emission rate (grams/trip)		10.32	7.57	172.85	0.01	0.01	199.87
Pounds per day		1.1	13.6	7.2	0.5	0.4	2477.7
Tons per construction period		0.00	0.00	0.00	0.00	0.00	0.91

Worker commute default values can be overridden in cells C60 through C65.

<b>Worker Commute Emissions</b>		User Override of Worker					
		Commute Default Values	Default Values				
Miles/ one-way trip		50.00	20				
One-way trips/day		5.00	2				
No. of employees: Grubbing/Land Clearing		6.00	0				
No. of employees: Grading/Excavation			0				
No. of employees: Drainage/Utilities/Sub-Grade			0				
No. of employees: Paving			0				
		<b>ROG</b>	<b>NOx</b>	<b>CO</b>	<b>PM10</b>	<b>PM2.5</b>	<b>CO2</b>
Emission rate - Grubbing/Land Clearing (grams/mile)		0.118	0.211	2.201	0.033	0.018	426.660
Emission rate - Grading/Excavation (grams/mile)		0.118	0.211	2.201	0.033	0.018	426.660
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)		0.000	0.000	0.000	0.000	0.000	0.000
Emission rate - Paving (grams/mile)		0.000	0.000	0.000	0.000	0.000	0.000
Emission rate - Grubbing/Land Clearing (grams/trip)		0.746	0.316	7.305	0.130	0.013	192.690
Emission rate - Grading/Excavation (grams/trip)		0.746	0.316	7.305	0.130	0.013	192.690
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)		0.000	0.000	0.000	0.000	0.000	0.000
Emission rate - Paving (grams/trip)		0.000	0.000	0.000	0.000	0.000	0.000
Pounds per day - Grubbing/Land Clearing		0.488	0.739	8.237	0.126	0.061	1435.135
Tons per const. Period - Grub/Land Clear		0.000	0.001	0.006	0.000	0.000	1.052
Pounds per day - Grading/Excavation		0.488	0.739	8.237	0.126	0.061	1435.135
Tons per const. Period - Grading/Excavation		0.000	0.000	0.003	0.000	0.000	0.526
Pounds per day - Drainage/Utilities/Sub-Grade		0.000	0.000	0.000	0.000	0.000	0.000
Tons per const. Period - Drain/Util/Sub-Grade		0.000	0.000	0.000	0.000	0.000	0.000
Pounds per day - Paving		0.000	0.000	0.000	0.000	0.000	0.000
Tons per const. Period - Paving		0.000	0.000	0.000	0.000	0.000	0.000
tons per construction period		0.001	0.001	0.009	0.000	0.000	1.579

Water truck default values can be overridden in cells C91 through C93 and E91 through E93.

Water Truck Emissions	User Override of	Program Estimate of	User Override of Truck	Default Values		
	Default # Water Trucks	Number of Water Trucks	Miles Traveled/Day	Miles Traveled/Day		
Grubbing/Land Clearing - Exhaust		0	0.00			
Grading/Excavation - Exhaust		0				
Drainage/Utilities/Subgrade		0				
	<b>ROG</b>	<b>NOx</b>	<b>CO</b>	<b>PM10</b>	<b>PM2.5</b>	<b>CO2</b>
Emission rate - Grubbing/Land Clearing (grams/mile)	0.84	10.25	5.45	0.40	0.33	1874.76
Emission rate - Grading/Excavation (grams/mile)	0.84	10.25	5.45	0.40	0.33	1874.76
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.00
Pound per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00
Pound per day - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00

Fugitive dust default values can be overridden in cells C110 through C112.

Fugitive Dust	User Override of Max	Default	PM10	PM10	PM2.5	PM2.5
	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period
Fugitive Dust - Grubbing/Land Clearing		0	0.0	0.0	0.0	0.0
Fugitive Dust - Grading/Excavation		0	0.0	0.0	0.0	0.0
Fugitive Dust - Drainage/Utilities/Subgrade		0	0.0	0.0	0.0	0.0

## Off-Road Equipment Emissions

Grubbing/Land Clearing		Default Number of Vehicles	ROG	CO	NOx	PM10	PM2.5	
Override of Default Number of Vehicles	Program-estimate	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	
		Air Compressors	0.00	0.00	0.00	0.00	0.00	
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	
		Cranes	0.00	0.00	0.00	0.00	0.00	
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	
		Excavators	0.00	0.00	0.00	0.00	0.00	
		Forklifts	0.00	0.00	0.00	0.00	0.00	
		Generator Sets	0.00	0.00	0.00	0.00	0.00	
		Graders	0.00	0.00	0.00	0.00	0.00	
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	
1.00		Other Construction Equipment	1.65	5.95	17.28	0.56	0.51	
1.00		Other General Industrial Equipment	0.72	2.15	6.88	0.23	0.21	
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	
		Pavers	0.00	0.00	0.00	0.00	0.00	
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	
		Pumps	0.00	0.00	0.00	0.00	0.00	
		Rollers	0.00	0.00	0.00	0.00	0.00	
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	
	0	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	
	0	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	
	0	Scrapers	0.00	0.00	0.00	0.00	0.00	
	0	Signal Boards	0.00	0.00	0.00	0.00	0.00	
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	
		Trenchers	0.00	0.00	0.00	0.00	0.00	
		Welders	0.00	0.00	0.00	0.00	0.00	
		Grubbing/Land Clearing	pounds per day	2.4	8.1	24.2	0.8	0.7
		Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.0

Grading/Excavation		Default	ROG	CO	NOx	PM10	PM2.5
Override of Default Number of Vehicles	Number of Vehicles <i>Program-estimate</i>	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00
	0	Cranes	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00
	0	Excavators	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00
	0	Graders	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00
	0	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00
		Plate Compactors	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00
	0	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00
	0	Scrapers	0.00	0.00	0.00	0.00	0.00
	0	Signal Boards	0.00	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00
	Grading/Excavation	pounds per day	0.0	0.0	0.0	0.0	0.0
	Grading	tons per phase	0.0	0.0	0.0	0.0	0.0

Drainage/Utilities/Subgrade Override of Default Number of Vehicles	Default Number of Vehicles		ROG	CO	NOx	PM10	PM2.5
	<i>Program-estimate</i>		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00
	0	Graders	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00
	0	Plate Compactors	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00
	0	Scrapers	0.00	0.00	0.00	0.00	0.00
	0	Signal Boards	0.00	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00
	0.00	0	Trenchers	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00
		Drainage	pounds per day	0.0	0.0	0.0	0.0
		Drainage	tons per phase	0.0	0.0	0.0	0.0

Paving	Default		ROG	CO	NOx	PM10	PM2.5
	Number of Vehicles	Type					
Override of Default Number of Vehicles	Program-estimate		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00
		Graders	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00
	0	Pavers	0.00	0.00	0.00	0.00	0.00
	0	Paving Equipment	0.00	0.00	0.00	0.00	0.00
		Plate Compactors	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00
	0	Rollers	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00
		Scrapers	0.00	0.00	0.00	0.00	0.00
	0	Signal Boards	0.00	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00
	Paving	pounds per day	0.0	0.0	0.0	0.0	0.0
	Paving	tons per phase	0.0	0.0	0.0	0.0	0.0
<b>Total Emissions all Phases (tons per construction period) ==&gt;</b>			<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

Equipment default values for horsepower, load factor, and hours/day can be overridden in cells C285 through C317, E285 through E317, and G285 through G317.

Equipment		Default Values Horsepower		Default Values Load Factor		Default Values Hours/day
Aerial Lifts		60		0.46		8
Air Compressors		106		0.48		8
Bore/Drill Rigs		291		0.75		8
Cement and Mortar Mixers		10		0.56		8
Concrete/Industrial Saws		19		0.73		8
Cranes		399		0.43		8
Crushing/Proc. Equipment		142		0.78		8
Excavators		168		0.57		8
Forklifts		145		0.30		8
Generator Sets		549		0.74		8
Graders		174		0.61		8
Off-Highway Tractors		267		0.65		8
Off-Highway Trucks		479		0.57		8
Other Construction Equipment	500.00	75		0.62	12.00	8
Other General Industrial Equipment	350.00	238		0.51	8.00	8
Other Material Handling Equipment		191		0.59		8
Pavers		100		0.62		8
Paving Equipment		104		0.53		8
Plate Compactors		8		0.43		8
Pressure Washers		1		0.60		8
Pumps		53		0.74		8
Rollers		95		0.56		8
Rough Terrain Forklifts		93		0.60		8
Rubber Tired Dozers		357		0.59		8
Rubber Tired Loaders		157		0.54		8
Scrapers		313		0.72		8
Signal Boards		20		0.78		8
Skid Steer Loaders		44		0.55		8
Surfacing Equipment		362		0.45		8
Sweepers/Scrubbers		91		0.68		8
Tractors/Loaders/Backhoes		108		0.55		8
Trenchers		63		0.75		8
Welders		45		0.45		8

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END OF DATA ENTRY SHEET

## Attachment 4

### Evaluation of GHG Emissions

# Evaluation of GHG Emissions in Terms of CO2 Equivalents (CO2(e)) from Natural Gas and Diesel Combustion

<b>Basis: 1 mmbtu of Natural Gas</b>				
Pollutant	Emission Factor (kg/mmbtu)	Global Warming Potential (GWP)	kg	kg CO2(e)
CO2	53.02	1	53.02	53.02
CH4	0.0009	21	0.0009	0.0189
N2O	0.0001	310	0.0001	0.031
			53.0	53.1
	<b>Ratio CO2(e)/CO2</b>			<b>1.0009</b>
<b>Notes</b>				
CO2 (e) - carbon dioxide equivalents				
CO2 (e) = kg x GWP				
Emission factors from Appendix A, Subchapter 10 (Climate Change), Article 2, Sections 951000 to 95133, California Code of Regulations (CCR) Title 17. Excerpts attached.				

<b>Basis: 1 mmbtu of Diesel</b>				
Pollutant	Emission Factor (kg/mmbtu)	Global Warming Potential (GWP)	kg	kg CO2(e)
CO2	73.1	1	73.1	73.1
CH4	0.003	21	0.003	0.063
N2O	0.0006	310	0.0006	0.186
	Totals		73.1	73.3
	<b>Ratio CO2(e)/CO2</b>			<b>1.0034</b>
<b>Notes</b>				
CO2 (e) - carbon dioxide equivalents				
CO2 (e) = kg x GWP				
Emission factors from Appendix A, Subchapter 10 (Climate Change), Article 2, Sections 951000 to 95133, California Code of Regulations (CCR) Title 17. Excerpts attached.				

APPENDIX A

to the Regulation for the Mandatory Reporting  
of Greenhouse Gas Emissions

**ARB COMPENDIUM OF EMISSION FACTORS AND METHODS TO SUPPORT  
MANDATORY REPORTING OF GREENHOUSE GAS EMISSIONS**

# **ARB COMPENDIUM OF EMISSION FACTORS AND METHODS TO SUPPORT MANDATORY REPORTING OF GREENHOUSE GAS EMISSIONS**

## **CONTENTS**

- 1. Introduction**
- 2. Unit Conversions**
- 3. Global Warming Potentials**
- 4. Method for Fuel Use to Carbon Dioxide Emissions Estimations**
- 5. Emission Factors**
  - a. Default Carbon Content, Heat Content, and Carbon Dioxide Emission Factors from Stationary Combustion
  - b. Methane and Nitrous Oxide Emission Factors for Stationary Combustion
  - c. Carbon Dioxide Emission Factors for Transport Fuels
  - d. Methane and Nitrous Oxide Emission Factors for Mobile Sources
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  - f. Fugitive Emission Factors for Coal Storage
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  - h. Nitrous Oxide Emission Factor for Wastewater Treatment
  - i. Oil/Water Separators
  - j. Gas Service Components Fugitive Emission Factors
- 6. Method for Calculating Emissions of High Global Warming Potential Compounds**

## **1. Introduction**

The contents of this compendium specify acceptable methods and emission factors that operators must use when preparing greenhouse gas emissions data reports for submission to the California Air Resources Board (ARB), as specified in the ARB Regulation for the Mandatory Reporting of Greenhouse Gas Emissions.

## 2. Unit Conversions

<b>Table 1. Conversion Table</b>		
<b>To Convert From</b>	<b>To</b>	<b>Multiply By</b>
Grams (g)	Tonnes (metric)	$1 \times 10^{-6}$
Kilograms (kg)	Tonnes (metric)	$1 \times 10^{-3}$
Megagrams	Tonnes (metric)	1
Gigagrams	Tonnes (metric)	$1 \times 10^3$
Pounds (lbs)	Tonnes (metric)	$4.5359 \times 10^{-4}$
Tons (long)	Tonnes (metric)	1.016
Tons (short)	Tonnes (metric)	0.9072
Barrels	Cubic metres (m <sup>3</sup> )	0.15898
Cubic feet (ft <sup>3</sup> )	Cubic metres (m <sup>3</sup> )	0.028317
Liters	Cubic meters (m <sup>3</sup> )	$1 \times 10^{-3}$
Cubic yards	Cubic meters (m <sup>3</sup> )	0.76455
Gallons (liquid, US)	Cubic meters (m <sup>3</sup> )	$3.7854 \times 10^{-3}$
Imperial gallon	Cubic meters (m <sup>3</sup> )	$4.54626 \times 10^{-3}$
Joule	Gigajoules (GJ)	$1 \times 10^{-9}$
Kilojoule	Gigajoules (GJ)	$1 \times 10^{-6}$
Megajoule	Gigajoules (GJ)	$1 \times 10^{-3}$
Terajoule (TJ)	Gigajoules (GJ)	$1 \times 10^3$
Btu	Gigajoules (GJ)	$1.05506 \times 10^{-6}$
Kilocalorie	Gigajoules (GJ)	$4.187 \times 10^{-6}$
Tonne oil eq. (toe)	Gigajoules (GJ)	41.86
kWh	Gigajoules (GJ)	$3.6 \times 10^{-3}$
Btu / ft <sup>3</sup>	GJ / m <sup>3</sup>	$3.72589 \times 10^{-5}$
Btu / lb	GJ / Tonnes (metric)	$2.326 \times 10^{-3}$
Lb / ft <sup>3</sup>	Tonnes (metric) / m <sup>3</sup>	$1.60185 \times 10^{-2}$
Psi	Bar	0.0689476
Kgf / cm <sup>3</sup> (tech atm)	Bar	0.980665
Atm	Bar	1.01325
Mile	Kilometer	1.6093
Hectares	Acres	2.471
Barrels	Gallons (liquid, US)	42

### 3. Global Warming Potentials

According to the Intergovernmental Panel on Climate Change (IPCC), the global warming potential (GWP) of a greenhouse gas is defined as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram (kg) of a trace substance relative to that of 1 kg of a reference gas. The reference gas used is CO<sub>2</sub>. The values given below are those reported in the IPCC Second Assessment Report (IPCC 1996). These values are used to be consistent with other statewide and national Greenhouse Gas (GHG) inventories. Operators must use these values when converting emissions of greenhouse gases to carbon dioxide equivalent values (CO<sub>2</sub>e) for purposes of estimating *de minimis* or other emissions as specified in this article.

<b>Table 2. Global Warming Potentials (100-Year Time Horizon)</b>	
<b>Gas</b>	<b>GWP</b>
CO <sub>2</sub>	1
CH <sub>4</sub> *	21
N <sub>2</sub> O	310
HFC-23	11,700
HFC-32	650
HFC-125	2,800
HFC-134a	1,300
HFC-143a	3,800
HFC-152a	140
HFC-227ea	2,900
HFC-236fa	6,300
HFC-4310mee	1,300
CF <sub>4</sub>	6,500
C <sub>2</sub> F <sub>6</sub>	9,200
C <sub>4</sub> F <sub>10</sub>	7,000
C <sub>6</sub> F <sub>14</sub>	7,400
SF <sub>6</sub>	23,900
* The CH <sub>4</sub> GWP includes the direct effects and those indirect effects due to the production of tropospheric ozone and stratospheric water vapor. The indirect effect due to the production of CO <sub>2</sub> is not included.	
Source: IPCC Climate Change 1995: The Science of Climate Change. (1996) Intergovernmental Panel on Climate Change, J.T. Houghton, L.G. Meira Filho, B.A. Callander, N. Harris, A. Kattenberg, and K. Maskell, eds. Cambridge University Press. Cambridge, U.K.	

## 5. Emission Factors

When working with the following emission factor tables the molar mass ratio of carbon dioxide to carbon (CO<sub>2</sub>/C) is assumed to be 3.664. Complete oxidation is assumed for all fuels (oxidation factor = 1).

### (a) Default Carbon Content, Heat Content, and Carbon Dioxide Emission Factors for Stationary Combustion

The default heat contents specified in Table 4 are provided for use with sections 95125(a) and (b) of the regulation.

The default carbon dioxide emission factors from stationary combustion on a heat content basis (kg CO<sub>2</sub> / MMBtu) specified in Table 4 and Table 5 are provided for use with sections 95125(a), (c) and (h) of the regulation.

<b>Fuel Type</b>	<b>Default Carbon Content</b>	<b>Default Heat Content</b>	<b>Default CO<sub>2</sub> Emission Factor</b>	<b>Default CO<sub>2</sub> Emission Factor</b>
	<b>kg C / MMBtu</b>	<b>MMBtu / Short Ton</b>	<b>kg CO<sub>2</sub> / Short Ton</b>	<b>kg CO<sub>2</sub> / MMBtu</b>
<b>Coal and Coke</b>				
Anthracite	28.26	25.09	2,597.94	103.54
Bituminous	25.49	24.93	2,328.35	93.40
Sub-bituminous	26.48	17.25	1,673.64	97.02
Lignite	26.30	14.21	1,369.32	96.36
Unspecified (Residential/Commercial)	26.00	22.24	2,118.67	95.26
Unspecified (Industrial Coking)	25.56	26.28	2,461.17	93.65
Unspecified (Other Industrial)	25.63	22.18	2,082.89	93.91
Unspecified (Electric Power)	25.76	19.97	1,884.86	94.38
Coke	27.85	24.80	2,530.65	102.04
<b>Natural Gas (By Heat Content)</b>	<b>kg C / MMBtu</b>	<b>Btu / Standard cubic foot</b>	<b>kg CO<sub>2</sub> / Standard cubic ft.</b>	<b>kg CO<sub>2</sub> / MMBtu</b>
975 to 1,000 Btu / Standard cubic foot	14.73	n/a	n/a	53.97
1000 to 1,025 Btu / Std cubic foot	14.43	n/a	n/a	52.87
1025 to 1,050 Btu / Std cubic foot	14.47	n/a	n/a	53.02
1050 to 1,075 Btu / Std cubic foot	14.58	n/a	n/a	53.42
1075 to 1,100 Btu / Std cubic foot	14.65	n/a	n/a	53.68
Greater than 1,100 Btu / Std cubic foot	14.92	n/a	n/a	54.67
Unspecified (Weighted U.S. Average)	14.47	1,027	0.0544	53.02

**Table 4. Default Carbon Content, Heat Content, and Carbon Dioxide Emission Factors from Stationary Combustion by Fuel Type (continued)**

	kg C / MMBtu	MMBtu / Barrel	kg CO <sub>2</sub> / gallon	kg CO <sub>2</sub> / MMBtu
<b>Petroleum Products</b>				
Asphalt & Road Oil	20.62	6.636	11.94	75.55
Aviation Gasoline	18.87	5.048	8.31	69.14
Distillate Fuel Oil (#1, 2 & 4)	19.95	5.825	10.14	73.10
Jet Fuel	19.33	5.670	9.56	70.83
Kerosene	19.72	5.670	9.75	72.25
LPG (energy use)	17.19	3.861	5.79	62.98
Propane	17.20	3.824	5.74	63.02
Ethane	16.25	2.916	4.13	59.54
Isobutane	17.75	4.162	6.44	65.04
n-Butane	17.72	4.328	6.69	64.93
Lubricants	20.24	6.065	10.71	74.16
Motor Gasoline	19.33	5.218	8.80	70.83
Residual Fuel Oil (#5 & 6)	21.49	6.287	11.79	78.74
Crude Oil	20.33	5.800	10.29	74.49
Naphtha (<401 deg. F)	18.14	5.248	8.30	66.46
Natural Gasoline	18.24	4.620	7.35	66.83
Other Oil (>401 deg. F)	19.95	5.825	10.14	73.10
Pentanes Plus	18.24	4.620	7.35	66.83
Petrochemical Feedstocks	19.37	5.428	9.17	70.97
Petroleum Coke	27.85	6.024	14.64	102.04
Still Gas	17.51	6.000	9.17	64.16
Special Naphtha	19.86	5.248	9.09	72.77
Unfinished Oils	20.33	5.825	10.33	74.49
Waxes	19.81	5.537	9.57	72.58
<b>Other Solid Fuels</b>				
Biomass Derived Fuels (Solid). Wood and Wood Waste (12% moisture content) or other solid biomass-derived fuels	25.60	15.38	1,442.62	93.80
Municipal Solid Waste (MSW)	24.74	8.7	788.7	90.65
<b>Biomass-derived Fuels (Gas)</b>				
Biogas*	28.4	Btu / Standard cubic foot	kg CO <sub>2</sub> / Standard cubic ft.	kg CO <sub>2</sub> / MMBtu
Biogas*	28.4	Varies	Varies	104.06
Note: Heat content factors are based on higher heating values (HHV). * The emission factors for biogas include both the CO <sub>2</sub> from combustion and the pass-through CO <sub>2</sub> , which are assumed to be in equal proportions.				
Source: U.S. EPA, <i>Inventory of Greenhouse Gas Emissions and Sinks: 1990-2005</i> (2007), Annex 2.1, Tables A-28, A-31, A-32, A-35, and A-36, except: Heat Content factors for Unspecified Coal (by sector), Coke, Naphtha (<401 deg. F), and Other Oil (>401 deg. F) (from U.S. Energy Information Administration, <i>Annual Energy Review 2005</i> (2006), Tables A-1, A-4, and A-5); Heat Content factors for Coal (by type) and LPG and all factors for Wood and Wood Waste, Landfill Gas, and Wastewater Treatment Biogas (from EPA Climate Leaders, <i>Stationary Combustion Guidance</i> (2004), Tables B-1 and B-2). MSW from Energy Information Administration, <a href="http://www.eia.doe.gov/oiaf/1605/factors.html">http://www.eia.doe.gov/oiaf/1605/factors.html</a> and from California Air Resources Board, MSW California Air Resources Board, 2008.				

(b) Methane and Nitrous Oxide Emission Factors for Stationary Combustion

The default methane and nitrous oxide emission factors for stationary combustion in Table 6 are provided for use with section 95125(b) of the regulation. For readability, these emission factors are provided in units of grams/MMBtu, but should be converted to kg/MMBtu (i.e., divided by 1000) when using them in the equations in section 95125(b).

<b>Table 6. Default CH<sub>4</sub> and N<sub>2</sub>O Emission Factors from Stationary Combustion by Fuel Type</b>		
<b>Fuel Type</b>	<b>Default CH<sub>4</sub> Emission Factor (g CH<sub>4</sub>/ MMBtu)</b>	<b>Default N<sub>2</sub>O Emission Factor (g N<sub>2</sub>O / MMBtu)</b>
Asphalt	3.0	0.6
Aviation Gasoline	3.0	0.6
Coal	10.0	1.5
Crude Oil	3.0	0.6
Derived Gases (low Btu gases)	0.3	0.1
Digester Gas	0.9	0.1
<b>Distillate</b>	<b>3.0</b>	<b>0.6</b>
Gasoline	3.0	0.6
Jet Fuel	3.0	0.6
Kerosene	3.0	0.6
Landfill Gas	0.9	0.1
LPG	1.0	0.1
Lubricants	3.0	0.6
MSW	30.0	4.0
Naphtha	3.0	0.6
<b>Natural Gas</b>	<b>0.9</b>	<b>0.1</b>
Natural Gas Liquids	3.0	0.6
Other Biomass	30.0	4.0
Petroleum Coke	3.0	0.6
Propane	1.0	0.1
Refinery Gas	0.9	0.1
Residual Fuel Oil	3.0	0.6
Tires	3.0	0.6
Waste Oil	30.0	4.0
Waxes	3.0	0.6
Wood (Dry)	30.0	4.0
Notes: Heat content factors are based on higher heating values (HHV). Values were converted from LHV to HHV assuming that LHV are 5 percent lower than HHV for solid and liquid fuels and 10 percent lower for gaseous fuels. Those employing this table are assumed to fall under the IPCC definitions of the "Energy Industry" or "Manufacturing Industries and Construction". In all fuels except for coal the values for these two categories are identical. For coal combustion, those who fall within the IPCC "Energy Industry" category may employ a value of 1 g of CH <sub>4</sub> /MMBtu.		
Source: Intergovernmental Panel on Climate Change, 2006 IPCC Guidelines for National Greenhouse Gas Inventories (2006), Volume 2, Tables 2.2, 2.3, and 2.4.		

Attachment 5

Copies of Emission Reports and Input Data for Equipment Installation  
Based on Road Construction Model

## Road Construction Emissions Model, Version 6.3.2

Emission Estimates for -> Naftex Equip Install Rev Feb 5										
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	-	-	-	-	-	-	-	-	-	-
Grading/Excavation	4.0	15.7	31.0	1.2	1.2	-	1.1	1.1	-	4,686.9
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
<b>Maximum (pounds/day)</b>	4.0	15.7	31.0	1.2	1.2	-	1.1	1.1	-	4,686.9
<b>Total (tons/construction project)</b>	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	-	5.2

Notes: Project Start Year -> 2013  
 Project Length (months) -> 0  
 Total Project Area (acres) -> 4  
 Maximum Area Disturbed/Day (acres) -> 0  
 Total Soil Imported/Exported (yd<sup>3</sup>/day)-> 0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

Emission Estimates for -> Naftex Equip Install Rev Feb 5										
Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	Total PM10 (kgs/day)	Exhaust PM10 (kgs/day)	Fugitive Dust PM10 (kgs/day)	Total PM2.5 (kgs/day)	Exhaust PM2.5 (kgs/day)	Fugitive Dust PM2.5 (kgs/day)	CO2 (kgs/day)
Grubbing/Land Clearing	-	-	-	-	-	-	-	-	-	-
Grading/Excavation	1.8	7.1	14.1	0.6	0.6	-	0.5	0.5	-	2,130.4
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
<b>Maximum (kilograms/day)</b>	1.8	7.1	14.1	0.6	0.6	-	0.5	0.5	-	2,130.4
<b>Total (megagrams/construction project)</b>	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	-	4.7

Notes: Project Start Year -> 2013  
 Project Length (months) -> 0  
 Total Project Area (hectares) -> 2  
 Maximum Area Disturbed/Day (hectares) -> 0  
 Total Soil Imported/Exported (meters<sup>3</sup>/day)-> 0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

# Road Construction Emissions Model

Version 6.3.2

## Data Entry Worksheet

Note: Required data input sections have a yellow background.

Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.

The user is required to enter information in cells C10 through C25.



### Input Type

Project Name	Naftex Equip Install Rev Feb 5	
Construction Start Year	2013	Enter a Year between 2005 and 2025 (inclusive)
Project Type	1	1 New Road Construction 2 Road Widening 3 Bridge/Overpass Construction
Project Construction Time	0.1	months
Predominant Soil/Site Type: Enter 1, 2, or 3	2	1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock
Project Length		miles
Total Project Area	4.3	acres
Maximum Area Disturbed/Day	0.0	acres
Water Trucks Used?	2	1. Yes 2. No
Soil Imported	0.0	yd <sup>3</sup> /day
Soil Exported	0.0	yd <sup>3</sup> /day
Average Truck Capacity	20.0	yd <sup>3</sup> (assume 20 if unknown)

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells C34 through C37.

Construction Periods	User Override of	Program
	Construction Months	Calculated
Grubbing/Land Clearing		0.01
Grading/Excavation	0.10	0.05
Drainage/Utilities/Sub-Grade		0.03
Paving		0.02
<b>Totals</b>	<b>0.10</b>	<b>0.10</b>

2005	%	2006	%	2007	%
0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00

Hauling emission default values can be overridden in cells C45 through C46.

<b>Soil Hauling Emissions</b>		User Override of					
User Input		Soil Hauling Defaults	Default Values				
Miles/round trip		50.00	30				
Round trips/day		2.00	0				
Vehicle miles traveled/day (calculated)				100			
<b>Hauling Emissions</b>		<b>ROG</b>	<b>NOx</b>	<b>CO</b>	<b>PM10</b>	<b>PM2.5</b>	<b>CO2</b>
Emission rate (grams/mile)		0.84	10.25	5.45	0.40	0.33	1874.76
Emission rate (grams/trip)		10.32	7.57	172.85	0.01	0.01	199.87
Pounds per day		0.2	2.3	1.2	0.1	0.1	412.9
Tons per construction period		0.00	0.00	0.00	0.00	0.00	0.45

Worker commute default values can be overridden in cells C60 through C65.

<b>Worker Commute Emissions</b>		User Override of Worker					
		Commute Default Values	Default Values				
Miles/ one-way trip		25.00	20				
One-way trips/day		3.00	2				
No. of employees: Grubbing/Land Clearing			0				
No. of employees: Grading/Excavation		3.00	0				
No. of employees: Drainage/Utilities/Sub-Grade			0				
No. of employees: Paving			0				
		<b>ROG</b>	<b>NOx</b>	<b>CO</b>	<b>PM10</b>	<b>PM2.5</b>	<b>CO2</b>
Emission rate - Grubbing/Land Clearing (grams/mile)		0.000	0.000	0.000	0.000	0.000	0.000
Emission rate - Grading/Excavation (grams/mile)		0.118	0.211	2.201	0.033	0.018	426.660
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)		0.000	0.000	0.000	0.000	0.000	0.000
Emission rate - Paving (grams/mile)		0.000	0.000	0.000	0.000	0.000	0.000
Emission rate - Grubbing/Land Clearing (grams/trip)		0.000	0.000	0.000	0.000	0.000	0.000
Emission rate - Grading/Excavation (grams/trip)		0.746	0.316	7.305	0.130	0.013	192.690
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)		0.000	0.000	0.000	0.000	0.000	0.000
Emission rate - Paving (grams/trip)		0.000	0.000	0.000	0.000	0.000	0.000
Pounds per day - Grubbing/Land Clearing		0.000	0.000	0.000	0.000	0.000	0.000
Tons per const. Period - Grub/Land Clear		0.000	0.000	0.000	0.000	0.000	0.000
Pounds per day - Grading/Excavation		0.000	0.000	0.000	0.000	0.000	0.000
Tons per const. Period - Grading/Excavation		0.000	0.000	0.000	0.000	0.000	0.000
Pounds per day - Drainage/Utilities/Sub-Grade		0.000	0.000	0.000	0.000	0.000	0.000
Tons per const. Period - Drain/Util/Sub-Grade		0.000	0.000	0.000	0.000	0.000	0.000
Pounds per day - Paving		0.000	0.000	0.000	0.000	0.000	0.000
Tons per const. Period - Paving		0.000	0.000	0.000	0.000	0.000	0.000
tons per construction period		0.000	0.000	0.000	0.000	0.000	0.000

Water truck default values can be overridden in cells C91 through C93 and E91 through E93.

Water Truck Emissions	User Override of	Program Estimate of	User Override of Truck	Default Values			
	Default # Water Trucks	Number of Water Trucks	Miles Traveled/Day	Miles Traveled/Day			
Grubbing/Land Clearing - Exhaust	0.00	0	0.00				
Grading/Excavation - Exhaust		0					
Drainage/Utilities/Subgrade		0					
	<b>ROG</b>	<b>NOx</b>	<b>CO</b>	<b>PM10</b>	<b>PM2.5</b>	<b>CO2</b>	
Emission rate - Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emission rate - Grading/Excavation (grams/mile)	0.84	10.25	5.45	0.40	0.33	1874.76	
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pound per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pound per day - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Fugitive dust default values can be overridden in cells C110 through C112.

Fugitive Dust	User Override of Max	Default	PM10	PM10	PM2.5	PM2.5
	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period
Fugitive Dust - Grubbing/Land Clearing		0	0.0	0.0	0.0	0.0
Fugitive Dust - Grading/Excavation		0	0.0	0.0	0.0	0.0
Fugitive Dust - Drainage/Utilities/Subgrade		0	0.0	0.0	0.0	0.0

### Off-Road Equipment Emissions

Grubbing/Land Clearing		Default Number of Vehicles	ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	Program-estimate	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
		Graders	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
0.00		0 Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
0.00		0 Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
		0 Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
		Grubbing/Land Clearing	pounds per day	0.0	0.0	0.0	0.0	0.0
		Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.0

Grading/Excavation		Default	ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	Number of Vehicles	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
	<i>Program-estimate</i>							
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
1.00	0	Cranes	0.96	3.26	8.77	0.32	0.29	1109.46
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0	Excavators	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Forklifts	0.20	1.15	1.47	0.08	0.08	195.65
		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0	Graders	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Off-Highway Trucks	1.86	5.46	15.36	0.54	0.50	2339.50
	0	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
	0	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Tractors/Loaders/Backhoes	0.28	3.21	1.76	0.06	0.06	491.07
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Welders	0.50	1.44	1.34	0.12	0.11	138.33
	Grading/Excavation	pounds per day	3.8	14.5	28.7	1.1	1.0	4274.0
	Grading	tons per phase	0.0	0.0	0.0	0.0	0.0	4.7



Paving	Default		ROG	CO	NOx	PM10	PM2.5	CO2	
	Override of Default Number of Vehicles	Number of Vehicles <i>Program-estimate</i>	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
			Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
			Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
			Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
			Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
			Cranes	0.00	0.00	0.00	0.00	0.00	0.00
			Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
			Excavators	0.00	0.00	0.00	0.00	0.00	0.00
			Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
			Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
			Graders	0.00	0.00	0.00	0.00	0.00	0.00
			Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
			Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
			Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
			Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
			Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0	Pavers	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
			Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
			Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
			Pumps	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0	Rollers	0.00	0.00	0.00	0.00	0.00	0.00
			Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
			Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
			Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
			Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
		0	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00
			Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
			Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
			Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
			Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
			Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
			Welders	0.00	0.00	0.00	0.00	0.00	0.00
		Paving	pounds per day	0.0	0.0	0.0	0.0	0.0	0.0
		Paving	tons per phase	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total Emissions all Phases (tons per construction period) ==&gt;</b>				<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>4.7</b>

Equipment default values for horsepower, load factor, and hours/day can be overridden in cells C285 through C317, E285 through E317, and G285 through G317.

Equipment	Default Values Horsepower	Default Values Load Factor	Default Values Hours/day
Aerial Lifts	60	0.46	8
Air Compressors	106	0.48	8
Bore/Drill Rigs	291	0.75	8
Cement and Mortar Mixers	10	0.56	8
Concrete/Industrial Saws	19	0.73	8
Cranes	399	0.43	12.00
Crushing/Proc. Equipment	142	0.78	8
Excavators	168	0.57	8
Forklifts	145	0.30	12.00
Generator Sets	549	0.74	8
Graders	174	0.61	8
Off-Highway Tractors	267	0.65	8
Off-Highway Trucks	479	0.57	12.00
Other Construction Equipment	75	0.62	8
Other General Industrial Equipment	238	0.51	8
Other Material Handling Equipment	191	0.59	8
Pavers	100	0.62	8
Paving Equipment	104	0.53	8
Plate Compactors	8	0.43	8
Pressure Washers	1	0.60	8
Pumps	53	0.74	8
Rollers	95	0.56	8
Rough Terrain Forklifts	93	0.60	8
Rubber Tired Dozers	357	0.59	8
Rubber Tired Loaders	157	0.54	8
Scrapers	313	0.72	8
Signal Boards	20	0.78	8
Skid Steer Loaders	44	0.55	8
Surfacing Equipment	362	0.45	8
Sweepers/Scrubbers	91	0.68	8
Tractors/Loaders/Backhoes	108	0.55	12.00
Trenchers	63	0.75	8
Welders	45	0.45	12.00

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END OF DATA ENTRY SHEET

Attachment 6

Copies of Emission Reports and Input Data for Production  
Based on Road Construction Model

## Road Construction Emissions Model, Version 6.3.2

Emission Estimates for -> Naftex Production Rev Feb 5										
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	-	-	-	-	-	-	-	-	-	-
Grading/Excavation	0.0	0.2	0.0	0.0	0.0	-	0.0	0.0	-	24.3
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
<b>Maximum (pounds/day)</b>	0.0	0.2	0.0	0.0	0.0	-	0.0	0.0	-	24.3
<b>Total (tons/construction project)</b>	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	-	3.2
Notes: Project Start Year -> 2013										
Project Length (months) -> 12										
Total Project Area (acres) -> 4										
Maximum Area Disturbed/Day (acres) -> 0										
Total Soil Imported/Exported (yd <sup>3</sup> /day)-> 0										
PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.										
Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.										
Emission Estimates for -> Naftex Production Rev Feb 5										
Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	Total PM10 (kgs/day)	Exhaust PM10 (kgs/day)	Fugitive Dust PM10 (kgs/day)	Total PM2.5 (kgs/day)	Exhaust PM2.5 (kgs/day)	Fugitive Dust PM2.5 (kgs/day)	CO2 (kgs/day)
Grubbing/Land Clearing	-	-	-	-	-	-	-	-	-	-
Grading/Excavation	0.0	0.1	0.0	0.0	0.0	-	0.0	0.0	-	11.1
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
<b>Maximum (kilograms/day)</b>	0.0	0.1	0.0	0.0	0.0	-	0.0	0.0	-	11.1
<b>Total (megagrams/construction project)</b>	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	-	2.9
Notes: Project Start Year -> 2013										
Project Length (months) -> 12										
Total Project Area (hectares) -> 2										
Maximum Area Disturbed/Day (hectares) -> 0										
Total Soil Imported/Exported (meters <sup>3</sup> /day)-> 0										
PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.										
Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.										

# Road Construction Emissions Model

Version 6.3.2

## Data Entry Worksheet

Note: Required data input sections have a yellow background.

Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.

The user is required to enter information in cells C10 through C25.



### Input Type

Project Name	Naftex Production Rev Feb 5	
Construction Start Year	2013	Enter a Year between 2005 and 2025 (inclusive)
Project Type	1	1 New Road Construction 2 Road Widening 3 Bridge/Overpass Construction
Project Construction Time	12.0	months
Predominant Soil/Site Type: Enter 1, 2, or 3	2	1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock
Project Length		miles
Total Project Area	4.3	acres
Maximum Area Disturbed/Day	0.0	acres
Water Trucks Used?	2	1. Yes 2. No
Soil Imported	0.0	yd <sup>3</sup> /day
Soil Exported	0.0	yd <sup>3</sup> /day
Average Truck Capacity	20.0	yd <sup>3</sup> (assume 20 if unknown)

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells C34 through C37.

Construction Periods	User Override of		Program
	Construction Months		Calculated
		Months	Months
Grubbing/Land Clearing			1.20
Grading/Excavation	12.00		5.40
Drainage/Utilities/Sub-Grade			3.60
Paving			1.80
<b>Totals</b>	12.00		12.00

2005	%	2006	%	2007	%
0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00

Hauling emission default values can be overridden in cells C45 through C46.

<b>Soil Hauling Emissions</b>		User Override of					
User Input	Soil Hauling Defaults	Default Values					
Miles/round trip	0.00	30					
Round trips/day	0.00	0					
Vehicle miles traveled/day (calculated)			0				
Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2	
Emission rate (grams/mile)	0.84	10.25	5.45	0.40	0.33	1874.76	
Emission rate (grams/trip)	10.32	7.57	172.85	0.01	0.01	199.87	
Pounds per day	0.0	0.0	0.0	0.0	0.0	0.0	
Tons per construction period	0.00	0.00	0.00	0.00	0.00	0.00	

Worker commute default values can be overridden in cells C60 through C65.

<b>Worker Commute Emissions</b>		User Override of Worker					
	Commute Default Values	Default Values					
Miles/ one-way trip	25.00	20					
One-way trips/day	1.00	2					
No. of employees: Grubbing/Land Clearing	1.00	0					
No. of employees: Grading/Excavation		0					
No. of employees: Drainage/Utilities/Sub-Grade		0					
No. of employees: Paving		0					
	ROG	NOx	CO	PM10	PM2.5	CO2	
Emission rate - Grubbing/Land Clearing (grams/mile)	0.000	0.000	0.000	0.000	0.000	0.000	
Emission rate - Grading/Excavation (grams/mile)	0.118	0.211	2.201	0.033	0.018	426.660	
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.000	0.000	0.000	0.000	0.000	0.000	
Emission rate - Paving (grams/mile)	0.000	0.000	0.000	0.000	0.000	0.000	
Emission rate - Grubbing/Land Clearing (grams/trip)	0.000	0.000	0.000	0.000	0.000	0.000	
Emission rate - Grading/Excavation (grams/trip)	0.746	0.316	7.305	0.130	0.013	192.690	
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.000	0.000	0.000	0.000	0.000	0.000	
Emission rate - Paving (grams/trip)	0.000	0.000	0.000	0.000	0.000	0.000	
Pounds per day - Grubbing/Land Clearing	0.000	0.000	0.000	0.000	0.000	0.000	
Tons per const. Period - Grub/Land Clear	0.000	0.000	0.000	0.000	0.000	0.000	
Pounds per day - Grading/Excavation	0.010	0.013	0.153	0.002	0.001	24.343	
Tons per const. Period - Grading/Excavation	0.001	0.002	0.020	0.000	0.000	3.213	
Pounds per day - Drainage/Utilities/Sub-Grade	0.000	0.000	0.000	0.000	0.000	0.000	
Tons per const. Period - Drain/Util/Sub-Grade	0.000	0.000	0.000	0.000	0.000	0.000	
Pounds per day - Paving	0.000	0.000	0.000	0.000	0.000	0.000	
Tons per const. Period - Paving	0.000	0.000	0.000	0.000	0.000	0.000	
tons per construction period	0.001	0.002	0.020	0.000	0.000	3.213	

Water truck default values can be overridden in cells C91 through C93 and E91 through E93.

Water Truck Emissions	User Override of	Program Estimate of	User Override of Truck	Default Values			
	Default # Water Trucks	Number of Water Trucks	Miles Traveled/Day	Miles Traveled/Day			
Grubbing/Land Clearing - Exhaust	0.00	0	0.00				
Grading/Excavation - Exhaust		0					
Drainage/Utilities/Subgrade		0					
	<b>ROG</b>	<b>NOx</b>	<b>CO</b>	<b>PM10</b>	<b>PM2.5</b>	<b>CO2</b>	
Emission rate - Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emission rate - Grading/Excavation (grams/mile)	0.84	10.25	5.45	0.40	0.33	1874.76	
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pound per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pound per day - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Fugitive dust default values can be overridden in cells C110 through C112.

Fugitive Dust	User Override of Max	Default	PM10	PM10	PM2.5	PM2.5
	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period
Fugitive Dust - Grubbing/Land Clearing		0	0.0	0.0	0.0	0.0
Fugitive Dust - Grading/Excavation		0	0.0	0.0	0.0	0.0
Fugitive Dust - Drainage/Utilities/Subgrade		0	0.0	0.0	0.0	0.0

## Off-Road Equipment Emissions

Grubbing/Land Clearing		Default Number of Vehicles	ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	Program-estimate	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
		Graders	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
0.00		0 Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
0.00		0 Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
		0 Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
		Grubbing/Land Clearing	pounds per day	0.0	0.0	0.0	0.0	0.0
		Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.0

Grading/Excavation		Default	ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	Number of Vehicles	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
	<i>Program-estimate</i>							
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
	0	Cranes	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	Excavators	0.00	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	Graders	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	Pumps	0.00	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
		Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Grading/Excavation	pounds per day	0.0	0.0	0.0	0.0	0.0	0.0
	Grading	tons per phase	0.0	0.0	0.0	0.0	0.0	0.0



Paving	Default		ROG	CO	NOx	PM10	PM2.5	CO2	
	Override of Default Number of Vehicles	Number of Vehicles <i>Program-estimate</i>	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
			Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
			Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
			Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
			Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
			Cranes	0.00	0.00	0.00	0.00	0.00	0.00
			Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
			Excavators	0.00	0.00	0.00	0.00	0.00	0.00
			Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
			Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
			Graders	0.00	0.00	0.00	0.00	0.00	0.00
			Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
			Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
			Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
			Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
			Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0	Pavers	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
			Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
			Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
			Pumps	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0	Rollers	0.00	0.00	0.00	0.00	0.00	0.00
			Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
			Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
			Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
			Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
		0	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00
			Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
			Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
			Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
			Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
			Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
			Welders	0.00	0.00	0.00	0.00	0.00	0.00
		Paving	pounds per day	0.0	0.0	0.0	0.0	0.0	0.0
		Paving	tons per phase	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total Emissions all Phases (tons per construction period) ==&gt;</b>				<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

Equipment default values for horsepower, load factor, and hours/day can be overridden in cells C285 through C317, E285 through E317, and G285 through G317.

Equipment	Default Values Horsepower	Default Values Load Factor	Default Values Hours/day
Aerial Lifts	60	0.46	8
Air Compressors	106	0.48	8
Bore/Drill Rigs	291	0.75	8
Cement and Mortar Mixers	10	0.56	8
Concrete/Industrial Saws	19	0.73	8
Cranes	399	0.43	8
Crushing/Proc. Equipment	142	0.78	8
Excavators	168	0.57	8
Forklifts	145	0.30	8
Generator Sets	549	0.74	8
Graders	174	0.61	8
Off-Highway Tractors	267	0.65	8
Off-Highway Trucks	479	0.57	8
Other Construction Equipment	75	0.62	8
Other General Industrial Equipment	238	0.51	8
Other Material Handling Equipment	191	0.59	8
Pavers	100	0.62	8
Paving Equipment	104	0.53	8
Plate Compactors	8	0.43	8
Pressure Washers	1	0.60	8
Pumps	53	0.74	8
Rollers	95	0.56	8
Rough Terrain Forklifts	93	0.60	8
Rubber Tired Dozers	357	0.59	8
Rubber Tired Loaders	157	0.54	8
Scrapers	313	0.72	8
Signal Boards	20	0.78	8
Skid Steer Loaders	44	0.55	8
Surfacing Equipment	362	0.45	8
Sweepers/Scrubbers	91	0.68	8
Tractors/Loaders/Backhoes	108	0.55	8
Trenchers	63	0.75	8
Welders	45	0.45	8

0

END OF DATA ENTRY SHEET

# Attachment 7

Copies of Risk Prioritization Evaluation  
Short-Term (Construction) Emissions  
Based on the SJVAPCD Spreadsheet Ver 2.0



CAS#	Substance	Annual Emissions	Maximum Hourly	Average Hourly	Disp Adj Method Carc	EP Method Carc	EP Method Chronic	EP Method Acute	EP Max of Chronic and Acute
79345	1,1,2,2-Tetrachloroethane			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
79005	1,1,2-Trichloroethane			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
75343	1,1-Dichloroethane			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0	1,2,3,4,5,6,7,8-OctaD			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0	1,2,3,4,5,6,7,8-OctaF			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
39001020	1,2,3,4,6,7,8,9-Octachlorodibenzofuran			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3268879	1,2,3,4,6,7,8,9-Octachlorodibenzo-P-dioxin			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
67562394	1,2,3,4,6,7,8-Heptachlorodibenzofuran			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
35822469	1,2,3,4,6,7,8-Heptachlorodibenzo-P-dioxin			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
55673897	1,2,3,4,7,8,9-Heptachlorodibenzofuran			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
70648269	1,2,3,4,7,8-Hexachlorodibenzofuran			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
39227286	1,2,3,4,7,8-Hexachlorodibenzo-P-dioxin			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
57117449	1,2,3,6,7,8-Hexachlorodibenzofuran			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
57653857	1,2,3,6,7,8-Hexachlorodibenzo-P-dioxin			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
72918219	1,2,3,7,8,9-Hexachlorodibenzofuran			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
19408743	1,2,3,7,8,9-Hexachlorodibenzo-P-dioxin			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
57117416	1,2,3,7,8-Pentachlorodibenzofuran			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
40321764	1,2,3,7,8-Pentachlorodibenzo-P-dioxin			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
96128	1,2-Dibromo-3-chloropropane			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
78875	1,2-Dichloropropane			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
122667	1,2-Diphenylhydrazine			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
106887	1,2-Epoxybutane			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
106990	1,3-Butadiene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
542756	1,3-Dichloropropene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1120714	1,3-Propane sultone			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
123911	1,4-Dioxane			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
42397648	1,6-Dinitropyrene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
42397659	1,8-Dinitropyrene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5522430	1-Nitropyrene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
39635319	2,3,3',4,4',5,5'-HEPTACHLORBIPHENYL (PCB 189)			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
38380084	2,3,3',4,4',5-HEXACHLOROBIPHENYL (PCB 156)			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

69782907	2,3,3',4,4',5'- HEXACHLOROBIPHENYL (PCB 157)			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
32598144	2,3,3',4,4'-Pentachlorobiphenyl {PCB 105}			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
52663726	2,3',4,4',5,5'- HEXACHLOROBIPHENYL (PCB 167)			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
74472370	2,3,4,4',5-PENTACHLOBIPHENYL (PCB 114)			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
31508006	2,3',4,4',5- PENTACHLOROBIPHENYL (PCB 118)			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
65510443	2,3',4,4',5'- PENTACHOROBIPHENYL (PCB 123)			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
60851345	2,3,4,6,7,8-Hexachlorodibenzofuran			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
57117314	2,3,4,7,8-Pentachlorodibenzofuran			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
51207319	2,3,7,8-Tetrachlorodibenzofuran			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1746016	2,3,7,8-Tetrachlorodibenzo-P-Dioxin			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
88062	2,4,6-Trichlorophenol			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
615054	2,4-Diaminoanisoole			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
95807	2,4-Diaminotoluene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
121142	2,4-Dinitrotoluene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
53963	2-Acetylaminofluorene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
117793	2-Aminoanthraquinone			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
607578	2-Nitrofluorene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
32774166	3,3',4,4',5,5'- HEXACHLOROBIPHENYL (PCB 169)			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
57465288	3,3',4,4',5- PENTACHLOROBIPHENYL (PCB 126)			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
32598133	3,3',4,4'-TETRACHLOROBIPHENYL (PCB77)			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
91941	3,3'-Dichlorobenzidine			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
70362504	3,4,4',5-TETRACHLOROBIPHENYL (PCB 81)			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
56495	3-Methylcholanthrene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
101144	4,4'-Methylene bis(2 Chloroaniline) (MOCA)			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
101779	4,4'-Methylenedianiline			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
92671	4-Aminobiphenyl			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

95830	4-Chloro-o-phenylenediamine			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
60117	4-Dimethylaminoazobenzene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
57835924	4-Nitropyrene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3697243	5-Methylchrysene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
602879	5-Nitroacenaphthene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7496028	6-Nitrochrysene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
57976	7,12-Dimethylbenz[a]anthracene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
194592	7H-Dibenzo[c,g]carbazole			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
75070	Acetaldehyde			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
60355	Acetamide			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
107028	Acrolein			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
79061	Acrylamide			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
79107	Acrylic acid			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
107131	Acrylonitrile			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
107051	Allyl chloride			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
319846	alpha-Hexachlorocyclohexane			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
61825	Amitrole			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7664417	Ammonia			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
62533	Aniline			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7440382	Arsenic			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1016	Arsenic compounds (inorganic)			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7784421	Arsine			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1332214	Asbestos			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
10294403	Barium chromate			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
56553	Benz[a]anthracene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
71432	Benzene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
92875	Benzidine (and its salts)			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1020	Benzidine-based dyes			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
50328	Benzo[a]pyrene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
205992	Benzo[b]fluoranthene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
205823	Benzo[j]fluoranthene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
207089	Benzo[k]fluoranthene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
100447	Benzyl chloride			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7440417	Beryllium			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
319857	beta-Hexachlorocyclohexane			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
57578	beta-Propiolactone			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
111444	Bis(2-chloroethyl) ether {DCEE}			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
542881	Bis(chloromethyl) ether			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7440439	Cadmium			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
13765190	Calcium chromate			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2425061	Captafol			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
133062	Captan			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
75150	Carbon disulfide			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
630080	Carbon monoxide			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
56235	Carbon tetrachloride			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
57749	Chlordane			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
108171262	Chlorinated paraffin			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7782505	Chlorine			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
10049044	Chlorine dioxide			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

108907	Chlorobenzene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
510156	Chlorobenzilate			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0	Chlorodifluoromethane			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
67663	Chloroform			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
107302	Chloromethyl methyl			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
76062	Chloropicrin			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1333820	Chromium trioxide			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
18540299	Chromium, hexavalent			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
218019	Chrysene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1066	Coke oven emissions			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7440508	Copper			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1319773	Cresols (mixtures of) {Cresylic acid}			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
135206	Cupferron			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1073	Cyanide compounds			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	CYANIDE COMPOUNDS								
57125	[Inorganic]			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
117817	Di(2-ethylhexyl) phthalate			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
226368	Dibenz[a,h]acridine			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2263680	Dibenz[a,h]acridine			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
53703	Dibenz[a,h]anthracene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
224420	Dibenz[a,j]acridine			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
192645	Dibenzo[a,e]pyrene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
189640	Dibenzo[a,h]pyrene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
189559	Dibenzo[a,i]pyrene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
191300	Dibenzo[a,l]pyrene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Dibenzofurans (chlorinated) {PCDFs}								
1080	[Treated as 2378TCDD for HRA]			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0	Dichlorodifluoromethene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Dichlorodiphenyldichloroethylene								
72559	{DDE}			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
73354	Dichloroethylene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
62737	Dichlorovos {DDVP}			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Diesel engine exhaust, particulate								
9901	matter (Diesel PM)	2.52E+01		2.88E-03	2.12E-01	1.29E+01	8.63E-02	0.00E+00	8.63E-02
111422	Diethanolamine			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
79447	Dimethyl carbamoyl chloride			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
68122	Dimethyl formamide			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
124403	Dimethylamine			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Dioxins, total, w/o individ. isomers								
1086	reported {PCDDs} [Treat as 2378TCDD for HRA]			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1937377	Direct Black 38			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2602462	Direct Blue 6			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
16071866	Direct Brown 95 (technical grade)			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
106898	Epichlorohydrin			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
100414	Ethyl benzene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
75003	Ethyl chloride {Chlorethane}			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

106934	Ethylene dibromide {EDB}			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
107062	Ethylene dichloride {EDC}			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
107211	Ethylene glycol			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
111762	Ethylene glycol monobutyl ethe			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
110805	Ethylene glycol monoethyl ethe			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
111159	Ethylene glycol monoethyl ether acetate			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
109864	Ethylene glycol monomethyl ethe			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
110496	Ethylene glycol monomethyl ether acetate			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
75218	Ethylene oxide			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
96457	Ethylene thiourea			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
151564	Ethyleneimine {Aziridine}			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1101	Fluorides			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
50000	Formaldehyde			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
111308	Glutaraldehyde			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
76448	Heptachlor			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
118741	Hexachlorobenzene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1120	Hexachlorocyclohexane			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
608731	Hexachlorocyclohexanes (mixed or technical grade)			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
67721	Hexachloroethane			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
110543	Hexane			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
302012	Hydrazine			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7647010	Hydrochloric acid			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
74908	Hydrocyanic acid			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7664393	Hydrogen fluoride			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7783075	Hydrogen Selenide			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7783075	HYDROGEN SELENIDE			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7783064	Hydrogen sulfide			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
193395	Indeno[1,2,3-cd]pyrene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
78591	Isophorone			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
67630	Isopropyl alcohol			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7439921	Lead			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
301042	Lead acetate			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7758976	Lead chromate			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1128	Lead compounds (inorganic)			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7446277	Lead phosphate			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1335326	Lead subacetate			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
58899	Lindane {gamma-Hexachlorocyclohexane}			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
108316	Maleic anhydride			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7439965	Manganese			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
108394	m-Cresol			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7487947	Mercuric chloride			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7439976	Mercury			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
67561	Methanol			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
74839	Methyl bromide {Bromomethane}			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

71556	Methyl chloroform {1,1,1-Trichloroethane}			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
78933	Methyl ethyl ketone			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
624839	Methyl isocyanate			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1634044	Methyl tert-butyl ether			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
75092	Methylene chloride {Dichloromethane}			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
101688	Methylene diphenyl diisocyanate {MDI}			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
90948	Michler's ketone			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
108383	m-Xylene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
91203	Naphthalene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7440020	Nickel			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
373024	Nickel acetate			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3333673	Nickel carbonate			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3333393	Nickel carbonate			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
13463393	Nickel carbonyl			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
12054487	Nickel hydroxide			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1313991	Nickel oxide			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1146	Nickel refinery dust			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
12035722	Nickel subsulfide			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1271289	Nickelocene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7697372	Nitric acid			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
139139	Nitriлотriacetic acid			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
10102440	NITROGEN DIOXIDE			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1116547	N-Nitrosodiethanolamine			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
55185	N-Nitrosodiethylamine			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
62759	N-Nitrosodimethylamine			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
924163	N-Nitrosodi-n-butylamine			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
621647	N-Nitrosodi-n-propylamine			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
86306	N-Nitrosodiphenylamine			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
10595956	N-Nitrosomethylethylamine			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
59892	N-Nitrosomorpholine			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
684935	N-Nitroso-N-methylurea			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
100754	N-Nitrosopiperidine			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
930552	N-Nitrosopyrrolidine			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
90040	o-Anisidine			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
95487	o-Cresol			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8014957	OLEUM			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
95534	o-Toluidine			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
95476	o-Xylene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
10028156	OZONE			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1151	PAHs, total, w/o individ. components reported [Treated as B(a)P for HRA]			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1336363	PCBs {Polychlorinated biphenyls}			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
95692	p-Chloro-o-toluidine			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
120718	p-Cresidine			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
106445	p-Cresol			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
106467	p-Dichlorobenzene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

87865	Pentachlorophenol			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
127184	Perchloroethylene {Tetrachloroethene}			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
108952	Phenol			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
75445	Phosgene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7803512	Phosphine			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7664382	Phosphoric acid			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
85449	Phthalic anhydride			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
156105	p-Nitrosodiphenylamine			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7758012	Potassium bromate			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
115071	Propylene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
107982	Propylene glycol monomethyl ethe:			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
75569	Propylene oxide			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
75569	Propylene oxide			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
106423	p-Xylene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
50555	Reserpine			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7782492	Selenium			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7446346	Selenium sulfide			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1175	Silica, crystalline			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7631869	Silica, crystalline			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
10588019	Sodium dichromate			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1310732	Sodium hydroxide			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7789062	Strontium chromate			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
100425	Styrene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
9960	Sulfates			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
9960	SULFATES			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7446095	Sulfur Dioxide			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7446719	Sulfur Trioxide			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7664939	Sulfuric acid			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0	Tetrachlorophenols			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
62555	Thioacetamide			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
62566	Thiourea			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
108883	Toluene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1204	Toluene diisocyanate			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
26471625	TOLUENE DIISOCYANATE			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
584849	Toluene-2,4-diisocyanate			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
91087	Toluene-2,6-diisocyanate			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8001352	Toxaphene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
79016	Trichloroethylene			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0	Trichlororfluormethane			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0	Trichlorotrifluormethane			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
121448	Triethylamine			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
51796	Urethane			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7440622	Vanadium (fume or dust)			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1314621	VANADIUM PENTOXIDE			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
108054	Vinyl acetate			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
75014	Vinyl chloride			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
75354	Vinylidene chloride			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1330207	XYLENES (mixed xylenes)			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

# Attachment 8

Copies of Emissions Report and Input Data for Plugging and Abandonment  
Based on the Road Construction Model

## Road Construction Emissions Model, Version 6.3.2

Emission Estimates for -> <b>Naftex Plugging and Abandonment Rev 2</b>										
Project Phases ( <b>English Units</b> )	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	2.3	15.2	18.4	0.7	0.7	-	0.6	0.6	-	4,337.9
Grading/Excavation	3.4	21.3	31.3	1.2	1.2	-	1.0	1.0	-	6,653.4
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
<b>Maximum (pounds/day)</b>	<b>3.4</b>	<b>21.3</b>	<b>31.3</b>	<b>1.2</b>	<b>1.2</b>	<b>-</b>	<b>1.0</b>	<b>1.0</b>	<b>-</b>	<b>6,653.4</b>
<b>Total (tons/construction project)</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>-</b>	<b>0.0</b>	<b>0.0</b>	<b>-</b>	<b>5.6</b>

Notes: Project Start Year -> 2013  
 Project Length (months) -> 0  
 Total Project Area (acres) -> 4  
 Maximum Area Disturbed/Day (acres) -> 0  
 Total Soil Imported/Exported (yd<sup>3</sup>/day)-> 0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

Emission Estimates for -> <b>Naftex Plugging and Abandonment Rev 2</b>										
Project Phases ( <b>Metric Units</b> )	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	Total PM10 (kgs/day)	Exhaust PM10 (kgs/day)	Fugitive Dust PM10 (kgs/day)	Total PM2.5 (kgs/day)	Exhaust PM2.5 (kgs/day)	Fugitive Dust PM2.5 (kgs/day)	CO2 (kgs/day)
Grubbing/Land Clearing	1.1	6.9	8.3	0.3	0.3	-	0.3	0.3	-	1,971.8
Grading/Excavation	1.5	9.7	14.2	0.6	0.6	-	0.5	0.5	-	3,024.3
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
<b>Maximum (kilograms/day)</b>	<b>1.5</b>	<b>9.7</b>	<b>14.2</b>	<b>0.6</b>	<b>0.6</b>	<b>-</b>	<b>0.5</b>	<b>0.5</b>	<b>-</b>	<b>3,024.3</b>
<b>Total (megagrams/construction project)</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>-</b>	<b>0.0</b>	<b>0.0</b>	<b>-</b>	<b>5.1</b>

Notes: Project Start Year -> 2013  
 Project Length (months) -> 0  
 Total Project Area (hectares) -> 2  
 Maximum Area Disturbed/Day (hectares) -> 0  
 Total Soil Imported/Exported (meters<sup>3</sup>/day)-> 0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

# Road Construction Emissions Model

Version 6.3.2

## Data Entry Worksheet

Note: Required data input sections have a yellow background.

Optional data input sections have a blue background. Only areas with a

yellow or blue background can be modified. Program defaults have a white background.

The user is required to enter information in cells C10 through C25.



### Input Type

Project Name	ex Plugging and Abandonment Rev 2	
Construction Start Year	2013	Enter a Year between 2005 and 2025 (inclusive)
Project Type	1	1 New Road Construction 2 Road Widening 3 Bridge/Overpass Construction
Project Construction Time	0.1	months
Predominant Soil/Site Type: Enter 1, 2, or 3	2	1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock
Project Length		miles
Total Project Area	4.3	acres
Maximum Area Disturbed/Day	0.0	acres
Water Trucks Used?	2	1. Yes No 2.
Soil Imported	0.0	yd <sup>3</sup> /day
Soil Exported	0.0	yd <sup>3</sup> /day
Average Truck Capacity	20.0	yd <sup>3</sup> (assume 20 if unknown)

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells C34 through C37.

Construction Periods	User Override of		Program
	Construction Months		Calculated
		Months	Months
Grubbing/Land Clearing	0.07		0.01
Grading/Excavation	0.03		0.03
Drainage/Utilities/Sub-Grade			0.02
Paving			0.01
<b>Totals</b>	<b>0.10</b>		<b>0.07</b>

2005	%	2006	%	2007
0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00

Please note: You have entered a different number of months than the project length shown in cell C13.

Hauling emission default values can be overridden in cells C45 through C46.

<b>Soil Hauling Emissions</b>		User Override of					
User Input	Soil Hauling Defaults	Default Values					
Miles/round trip	100.00	30					
Round trips/day	6.00	0					
Vehicle miles traveled/day (calculated)			600				
Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2	
Emission rate (grams/mile)	0.84	10.25	5.45	0.40	0.33	1874.76	
Emission rate (grams/trip)	10.32	7.57	172.85	0.01	0.01	199.87	
Pounds per day	1.1	13.6	7.2	0.5	0.4	2477.7	
Tons per construction period	0.00	0.00	0.00	0.00	0.00	0.91	

Worker commute default values can be overridden in cells C60 through C65.

<b>Worker Commute Emissions</b>		User Override of Worker					
	Commute Default Values	Default Values					
Miles/ one-way trip	50.00	20					
One-way trips/day	5.00	2					
No. of employees: Grubbing/Land Clearing	6.00	0					
No. of employees: Grading/Excavation		0					
No. of employees: Drainage/Utilities/Sub-Grade		0					
No. of employees: Paving		0					
	ROG	NOx	CO	PM10	PM2.5	CO2	
Emission rate - Grubbing/Land Clearing (grams/mile)	0.118	0.211	2.201	0.033	0.018	426.660	
Emission rate - Grading/Excavation (grams/mile)	0.118	0.211	2.201	0.033	0.018	426.660	
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.000	0.000	0.000	0.000	0.000	0.000	
Emission rate - Paving (grams/mile)	0.000	0.000	0.000	0.000	0.000	0.000	
Emission rate - Grubbing/Land Clearing (grams/trip)	0.746	0.316	7.305	0.130	0.013	192.690	
Emission rate - Grading/Excavation (grams/trip)	0.746	0.316	7.305	0.130	0.013	192.690	
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.000	0.000	0.000	0.000	0.000	0.000	
Emission rate - Paving (grams/trip)	0.000	0.000	0.000	0.000	0.000	0.000	
Pounds per day - Grubbing/Land Clearing	0.488	0.739	8.237	0.126	0.061	1435.135	
Tons per const. Period - Grub/Land Clear	0.000	0.001	0.006	0.000	0.000	1.052	
Pounds per day - Grading/Excavation	0.488	0.739	8.237	0.126	0.061	1435.135	
Tons per const. Period - Grading/Excavation	0.000	0.000	0.003	0.000	0.000	0.526	
Pounds per day - Drainage/Utilities/Sub-Grade	0.000	0.000	0.000	0.000	0.000	0.000	
Tons per const. Period - Drain/Util/Sub-Grade	0.000	0.000	0.000	0.000	0.000	0.000	
Pounds per day - Paving	0.000	0.000	0.000	0.000	0.000	0.000	
Tons per const. Period - Paving	0.000	0.000	0.000	0.000	0.000	0.000	
tons per construction period	0.001	0.001	0.009	0.000	0.000	1.579	

Water truck default values can be overridden in cells C91 through C93 and E91 through E93.

Water Truck Emissions	User Override of	Program Estimate of	User Override of Truck	Default Values		
	Default # Water Trucks	Number of Water Trucks	Miles Traveled/Day	Miles Traveled/Day		
Grubbing/Land Clearing - Exhaust		0	0.00			
Grading/Excavation - Exhaust		0				
Drainage/Utilities/Subgrade		0				
	<b>ROG</b>	<b>NOx</b>	<b>CO</b>	<b>PM10</b>	<b>PM2.5</b>	<b>CO2</b>
Emission rate - Grubbing/Land Clearing (grams/mile)	0.84	10.25	5.45	0.40	0.33	1874.76
Emission rate - Grading/Excavation (grams/mile)	0.84	10.25	5.45	0.40	0.33	1874.76
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.00
Pound per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00
Pound per day - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00

Fugitive dust default values can be overridden in cells C110 through C112.

Fugitive Dust	User Override of Max	Default	PM10	PM10	PM2.5	PM2.5
	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period
Fugitive Dust - Grubbing/Land Clearing		0	0.0	0.0	0.0	0.0
Fugitive Dust - Grading/Excavation		0	0.0	0.0	0.0	0.0
Fugitive Dust - Drainage/Utilities/Subgrade		0	0.0	0.0	0.0	0.0

## Off-Road Equipment Emissions

Grubbing/Land Clearing		Default	ROG	CO	NOx	PM10	PM2.5	
Override of Default Number of Vehicles	Number of Vehicles	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	
	<i>Program-estimate</i>							
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	
		Air Compressors	0.00	0.00	0.00	0.00	0.00	
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	
		Cranes	0.00	0.00	0.00	0.00	0.00	
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	
		Excavators	0.00	0.00	0.00	0.00	0.00	
		Forklifts	0.00	0.00	0.00	0.00	0.00	
		Generator Sets	0.00	0.00	0.00	0.00	0.00	
		Graders	0.00	0.00	0.00	0.00	0.00	
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	
	1.00	Off-Highway Trucks	0.65	1.90	5.51	0.19	0.18	
	1.00	Other Construction Equipment	1.10	3.96	11.52	0.37	0.34	
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	
		Pavers	0.00	0.00	0.00	0.00	0.00	
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	
		Pumps	0.00	0.00	0.00	0.00	0.00	
		Rollers	0.00	0.00	0.00	0.00	0.00	
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	
	0	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	
	0	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	
	0	Scrapers	0.00	0.00	0.00	0.00	0.00	
	0	Signal Boards	0.00	0.00	0.00	0.00	0.00	
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	
	1.00	Tractors/Loaders/Backhoes	0.09	1.06	0.58	0.02	0.02	
		Trenchers	0.00	0.00	0.00	0.00	0.00	
		Welders	0.00	0.00	0.00	0.00	0.00	
		Grubbing/Land Clearing	pounds per day	1.8	6.9	17.6	0.6	0.5
		Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.0

Grading/Excavation		Default	ROG	CO	NOx	PM10	PM2.5
Override of Default Number of Vehicles	Number of Vehicles <i>Program-estimate</i>	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00
	0	Cranes	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00
	0	Excavators	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00
	0	Graders	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00
	1.00	Off-Highway Trucks	0.65	1.90	5.51	0.19	0.18
	1.00	0 Other Construction Equipment	1.10	3.96	11.52	0.37	0.34
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00
		Plate Compactors	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00
	0	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00
	0	Scrapers	0.00	0.00	0.00	0.00	0.00
	0	Signal Boards	0.00	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00
	Grading/Excavation	pounds per day	1.8	5.9	17.0	0.6	0.5
	Grading	tons per phase	0.0	0.0	0.0	0.0	0.0

Drainage/Utilities/Subgrade Override of Default Number of Vehicles	Default		ROG	CO	NOx	PM10	PM2.5
	Number of Vehicles	Program-estimate	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00
	0	Graders	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00
	0	Plate Compactors	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00
	0	Scrapers	0.00	0.00	0.00	0.00	0.00
	0	Signal Boards	0.00	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00
	0.00	0	Trenchers	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00
		Drainage	pounds per day	0.0	0.0	0.0	0.0
		Drainage	tons per phase	0.0	0.0	0.0	0.0

Paving	Default		ROG	CO	NOx	PM10	PM2.5
	Number of Vehicles	Type					
Override of Default Number of Vehicles	Program-estimate	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00
		Graders	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00
	0	Pavers	0.00	0.00	0.00	0.00	0.00
	0	Paving Equipment	0.00	0.00	0.00	0.00	0.00
		Plate Compactors	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00
	0	Rollers	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00
		Scrapers	0.00	0.00	0.00	0.00	0.00
	0	Signal Boards	0.00	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00
	Paving	pounds per day	0.0	0.0	0.0	0.0	0.0
	Paving	tons per phase	0.0	0.0	0.0	0.0	0.0
<b>Total Emissions all Phases (tons per construction period) ==&gt;</b>			<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

Equipment default values for horsepower, load factor, and hours/day can be overridden in cells C285 through C317, E285 through E317, and G285 through G317.

Equipment		Default Values Horsepower		Default Values Load Factor		Default Values Hours/day
Aerial Lifts		60		0.46		8
Air Compressors		106		0.48		8
Bore/Drill Rigs		291		0.75		8
Cement and Mortar Mixers		10		0.56		8
Concrete/Industrial Saws		19		0.73		8
Cranes		399		0.43		8
Crushing/Proc. Equipment		142		0.78		8
Excavators		168		0.57		8
Forklifts		145		0.30		8
Generator Sets		549		0.74		8
Graders		174		0.61		8
Off-Highway Tractors		267		0.65		8
Off-Highway Trucks	500.00	479		0.57	4.00	8
Other Construction Equipment	500.00	75		0.62	8.00	8
Other General Industrial Equipment		238		0.51		8
Other Material Handling Equipment		191		0.59		8
Pavers		100		0.62		8
Paving Equipment		104		0.53		8
Plate Compactors		8		0.43		8
Pressure Washers		1		0.60		8
Pumps		53		0.74		8
Rollers		95		0.56		8
Rough Terrain Forklifts		93		0.60		8
Rubber Tired Dozers		357		0.59		8
Rubber Tired Loaders		157		0.54		8
Scrapers		313		0.72		8
Signal Boards		20		0.78		8
Skid Steer Loaders		44		0.55		8
Surfacing Equipment		362		0.45		8
Sweepers/Scrubbers		91		0.68		8
Tractors/Loaders/Backhoes	107.00	108		0.55	4.00	8
Trenchers		63		0.75		8
Welders		45		0.45		8

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END OF DATA ENTRY SHEET

ATTACHMENT C

BIOLOGICAL ASSESSMENT

**Biological Assessment  
Naftex Operating Company  
Bloemer and Kirschenman Oil and Gas Exploration Project  
Kern County, California**

**Prepared for:**

**Naftex Operating Company  
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**Prepared by:**

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**January 2013**

## **INTRODUCTION**

Naftex Operating Company (Naftex) proposes to construct six (6) well sites, construct new access roads to all six (6) proposed well sites, and drill one (1) exploratory oil and gas well from each of the proposed well sites for a total of six (6) exploratory wells within annual grassland and ruderal habitat in central Kern County, California. Naftex retained the services of Robert A. Booher Consulting (RAB Consulting) to conduct a biological survey and assessment of the proposed well sites, proposed access roads, proposed oil and gas flow lines, and buffer areas for submittal to the State of California, Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR).

On April 17, April 19-21, May 28-31, June 25-28, August 30, and September 4-7, 2012, RAB Consulting conducted biological surveys (including protocol-level surveys for blunt-nosed leopard lizards) of the proposed project area including the proposed well sites, proposed access roads, proposed oil and gas flow lines, as well as buffer areas to identify known or potential habitat for special-status wildlife and plant species. This report presents the results of our biological surveys and includes recommendations for avoidance and minimization measures to be implemented during the proposed project to avoid or minimize potential impacts to sensitive wildlife and plants and their habitats.

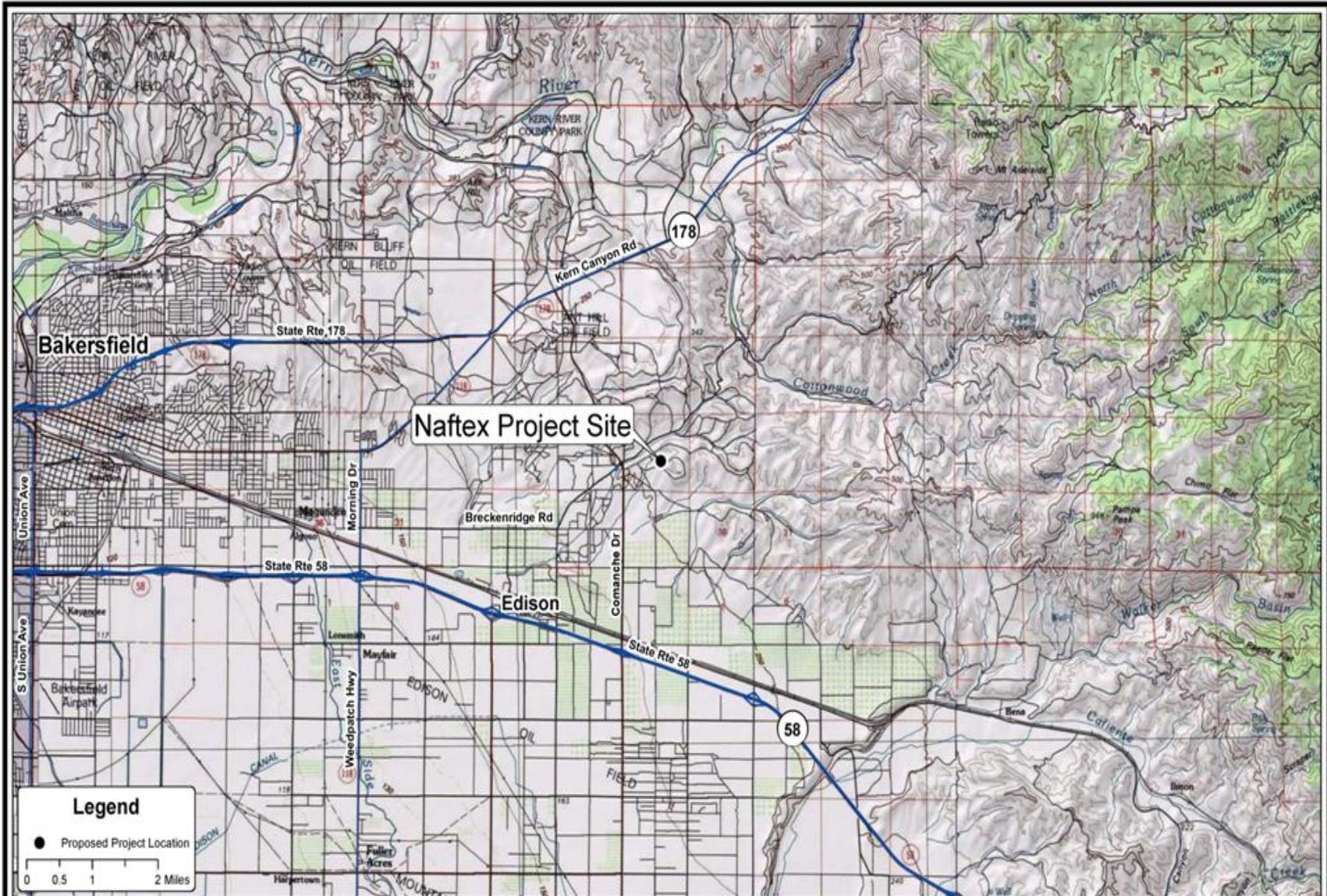
## **PROJECT LOCATION AND ENVIRONMENTAL SETTING**

The proposed project is located 2.9 miles northeast of Edison in central Kern County, California (see Figures 1 and 2). The longitude and latitude using mapping datum WGS 84 for each of the proposed project sites are presented in Table 1.

**Table 1**  
**Locations of Proposed Project Sites**

<b>Well Name</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Section, Township, and Range</b>
Bloemer 1	35.374949	-118.8341000	Section 26, Township 29 South, Range 29 East
Bloemer 2	35.376241	-118.8340937	Section 26, Township 29 South, Range 29 East
Bloemer 3	35.3755525	-118.8337385	Section 26, Township 29 South, Range 29 East
Bloemer 4	35.3749549	-118.8330825	Section 26, Township 29 South, Range 29 East
Kirschenman 1	35.3742796	-118.8335941	Section 26, Township 29 South, Range 29 East
Kirschenman 2	35.3735667	-118.8340511	Section 26, Township 29 South, Range 29 East

The proposed well sites are located in habitat that consists of disturbed/ruderal and non-native grassland habitats that are currently used for cattle grazing. Each of the proposed project sites would encompass an area of 120 feet by 200 feet (24,000 square feet, or 0.55 acres). Comanche Drive, County Highway 218 and existing dirt roads provide access to the proposed project. A new access road will need to be constructed to each of the proposed project sites from existing dirt roads. Each new access road will be approximately 20 feet wide and 350 feet long as shown on Figure 2 the Project Location Map. The total estimated surface disturbance resulting from the construction of the access roads and the well sites would be 186,000 square feet, or 4.3 acres.

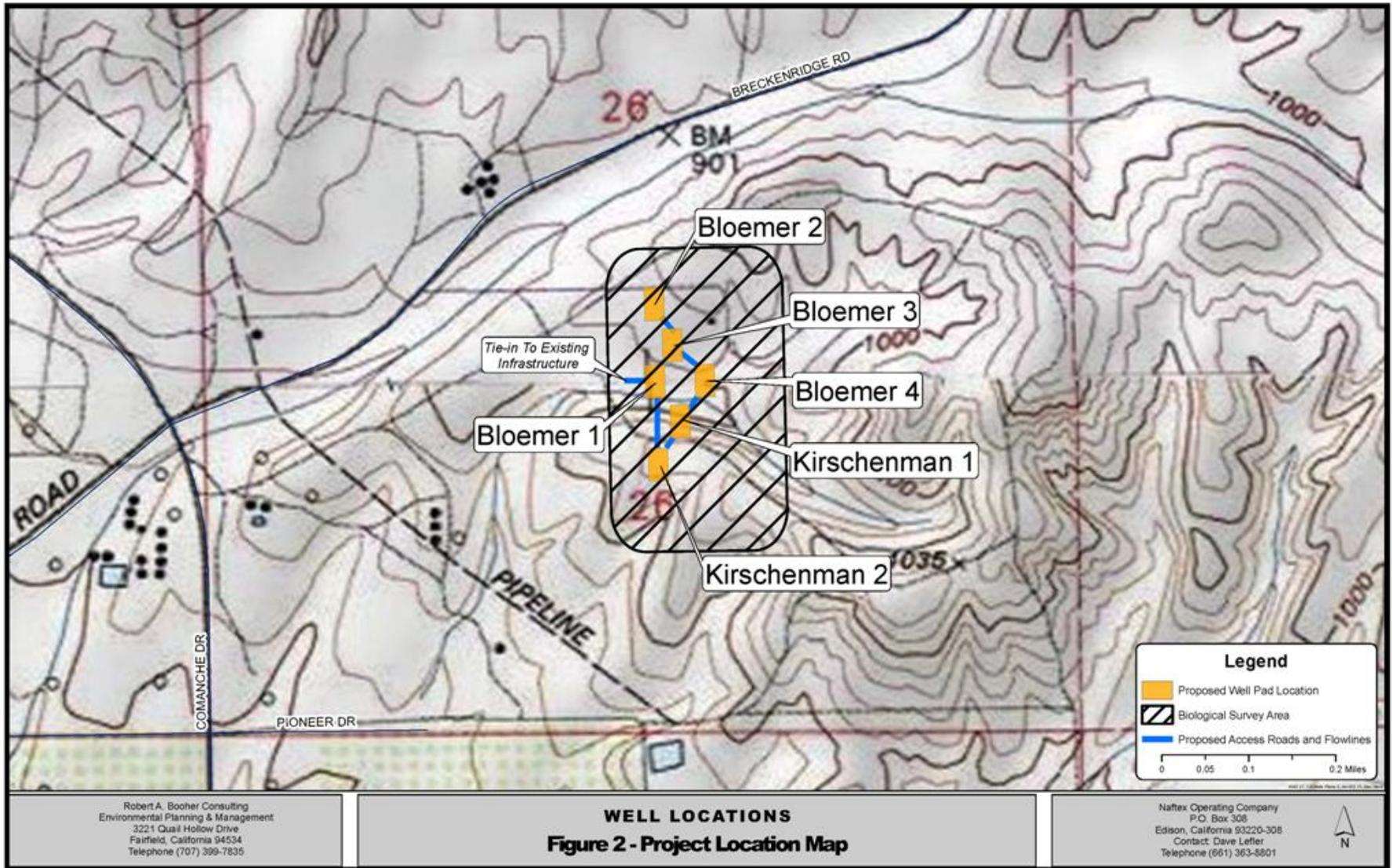


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**WELL LOCATIONS**  
**Figure 1 - Project Vicinity Map**

Naftex Operating Company  
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 N



The proposed project is needed to develop additional oil and natural gas reserves in the State of California. The objective of the proposed project is to locate untapped oil and gas sources with potential for development. The proposed project includes three (3) phases: a site preparation phase, a drilling phase and a production phase. A detailed description of each phase is presented below.

The terms “project site” and “project area” are used within this document. The term “project site” is used to define the proposed area of disturbance such as the proposed project sites, etc. The term “project area” includes the area surrounding the proposed project sites.

### **Site Preparation Phase**

Site preparation activities for each of the proposed project sites would include clearing, grading, and compaction of soil. Once a proposed project site has been cleared, it would be graded, watered and compacted to establish a level and solid foundation for the drilling rig. If required a commercial base material such as aggregate ¾” base rock would be used to weatherize each of the proposed well pad areas.

A reserve pit may be excavated during site preparation for storage and handling of drilling mud and cuttings during the drilling process within the boundaries of a proposed project site. Soil will be stockpiled on site and used as backfill upon completion of drilling. If constructed, the reserve pit will be 75 feet long by 25 feet wide by six (6) feet deep. The reserve pit will hold 84,150 gallons with a two-foot freeboard. Reserve pits would be constructed by mechanical compaction. Compaction of the surface, combined with the deposition of bentonite drilling mud during drilling operations, would give the pit a bentonite seal with a maximum permeability of approximately  $10^{-6}$  cm/sec. Should a shallow water table preclude the use of such a method, Naftex will use a closed loop system of above ground tanks for handling of all drilling mud and cuttings. The approximate depth to ground water is 460 feet (California Department of Water Resources Water Data Library 2012). Completing the site preparation process for each of the proposed project sites would require approximately three (3) days. Water may be applied to access roads and each of the proposed project sites to facilitate movement of heavy equipment and to control dust.

### **Drilling Phase**

Drilling equipment, will be mobilized to each site and temporary facilities, equipment and materials necessary for the drilling operation would be set up and stored on site (i.e., drilling mud supplies, water, drilling materials and casing, crew support trailers, pumps and piping, portable generators, fuels and lubricants, etc.). Typically, this process is completed in approximately one (1) day. Night lighting will be required and available only during the drilling phase. However, to the greatest extent possible night lighting will be directed inward and down to minimize off site impacts without compromising safety. All hazardous materials such as diesel fuel will be stored according to applicable federal, state and local regulations. Portable tanks and mud pits will be used for mixing and storing drilling fluids. All fluids will be disposed of in accordance with the requirements of the Central Valley Regional Water Quality Control Board (RWQCB). If a reserve pit/sump is used, the use and closure of the reserve pit/sump will be

handled in accordance with Title 27, CCR, Section 20090(g), and Regional Board Waiver Resolution No. R5-2008-0182.

Surface casing would be set, cemented, and blowout prevention equipment installed at each of the wellheads and tested. Well casing is designed to protect fresh water zones. The approximate depth to ground water is 460 feet. Blowout prevention equipment would be regulated by California Division of Oil, Gas and Geothermal Resources (Division). Division engineers would be notified for required tests and other operations. Sufficient weighted drilling fluid would be used to prevent any uncontrolled flow from a well and additional quantities of drilling fluid would be available at each of the proposed project sites. It is anticipated that approximately 3,500 barrels (147,000 gallons) of water would be needed for the drilling and site construction operations. Drilling would continue until target depth is reached. Equipment, personnel and supply deliveries would continue through the course of the drilling program. Naftex estimates that approximately two (2) days would be required for drilling each well. Division engineers would be present for the required tests and other operations.

Equipment, personnel and supply deliveries would continue through the course of the drilling program. Drilling activities would operate 24 hours per day. Approximately 12-15 personnel would be on site at any given time during the drilling operations.

### **Production Phase**

Once target depth is reached, each of the proposed wells would be fully evaluated, completed and either produced or plugged and abandoned. If economic quantities of oil or gas are discovered, a given well will be completed and production equipment including a well head and API 10 hp electronic motor pumping unit will be installed on site. Flowlines will be installed aboveground adjacent to the proposed new access roads. The proposed flowlines will connect the proposed wells to existing pipeline infrastructure located west of the proposed Bloemer 1 well site. The proposed flowlines will measure approximately 1,900 feet in length (see Figure 2). The proposed flowlines will be installed on sleepers to avoid impacts to small mammal burrows. Naftex proposes to paint all production equipment in camouflage or an earthen tone to blend in with the environment and to prevent glare. Naftex estimates that approximately three (3) days would be required for flow line installation activities.

Naftex anticipates 10 barrels of oil and 90 barrels of production water will be produced daily from each well. The oil will be transported from the wells through flow lines to Naftex's existing production facility and sold to a local refinery. The production water will be transported to Naftex's existing production facility and will be disposed of in existing Naftex Division permitted Class II disposal wells. Each of the production sites will be visited daily.

Once a well stops producing, it will be plugged and abandoned in accordance with Title 14 CCR, Division 2, Chapter 4, Subchapter 1, Article 3, Sections 1723 – 1723.8. In this case, a Notice of Intention to abandon the well will be submitted to the Division for review and approval. During a typical well abandonment, recoverable casing will be salvaged from the well and the hole will be plugged with cement. The wellhead (and any other equipment) will be removed, the casing cut off 6 feet below ground surface, capped with a welded plate and the cellar backfilled. This process

will utilize the same equipment that will be used for the completion phase and the process will be completed in two (2) days. The land contours of each well site would be re-established to near grade conditions as present at the time of project initiation. After all equipment is removed, the site would be restored to its condition prior to construction of the well pad.

No valley saltbush scrub, wetlands, streams, or other sensitive habitats are present within the boundaries of the proposed project sites, proposed access roads, or the buffers of these areas. The project area is utilized for cattle and sheep grazing, as well as oil and gas exploration and production activities.

## **SURVEY METHODOLOGIES**

**Literature Review:** We reviewed RAB Consulting data files, records from the California Natural Diversity Database (CNDDDB) (California Department of Fish and Wildlife [CDFW] 2012), the United States Fish and Wildlife Service (USFWS) online electronic database of threatened and endangered species (USFWS 2012), and the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2012) for the USGS Edison and Rio Bravo Ranch 7.5-minute quadrangle maps for special-status species that have potential to occur within the project area. Special-status species that potentially occur within and/or adjacent to the proposed project sites and buffer areas are identified in Table 2. Figure 3 illustrates the location of documented special-status plant and animal occurrences within the proposed project area.

Background information for listed wildlife and plant species (including biology, reasons for decline, limiting factors, etc.) that have potential to occur within and/or adjacent to the proposed project sites and buffer areas is found in the recovery plan for upland species of the San Joaquin Valley, California (Williams et al. 1998). Species that do not have potential to occur are not discussed within this report.

Sources consulted for information on distribution of special-status wildlife species, as well as local and regional sensitive fauna include Remsen 1978 [birds], Williams 1986 [mammals], Jennings and Hayes 1994 [reptiles and amphibians], and Moyle et al. 1989 [fish] and Williams et al. (1998) for federal and state listed animal and plant species.

*Special-Status Species* - Special-status species are those taxa that are legally protected under the State or Federal Endangered Species Act (ESAs) or other regulations and considered sufficiently rare by the scientific community to qualify for such listing. Special-status plants and animals generally fall into one or more of the following categories:

- Plants or animals listed or proposed for listing as threatened or endangered under the federal ESA (50 Code of Federal Regulations [CFR] 17.12 [listed plants], 1711 [listed animal] and various notices in the Federal Register [FR][proposed species]);
- Plants or animals that are candidates for possible future listing as threatened or endangered under the federal ESA (61 FR 40, February 28, 1996);

- Plants or animals listed or proposed for listing by the State of California as threatened or endangered under the California ESA (14 California Code of Regulations [CCR] 670.5);
- Animal species of special concern to the California Department of Fish and Wildlife (CDFW) (Remsen 1978 [birds], Williams 1986 [mammals], Jennings and Hayes 1994 [reptiles and amphibians], Moyle et al. 1989 [fish]);
- Animals fully protected in California (California Fish and Wildlife Code, Sections 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]);
- Plants considered under the CNPS to be rare, threatened, or endangered in California (Lists 1B and 2) in CNPS (2001 and 2012) and Skinner and Pavlik (1994); and
- Plants identified by CNPS for which more information is needed to determine their status (List 3) and plants of limited distribution (List 4) in CNPS (2001 and 2012) and Skinner and Pavlik (1994) – these taxa may be included as special-status species on the basis of local significance or recent biological information.

### **SENSITIVE WILDLIFE SPECIES SURVEYS**

We surveyed the proposed well site locations, proposed flow line routes, proposed access roads to the well site locations, and the buffer area of around the proposed well sites, proposed flow line routes, and proposed access roads for sensitive wildlife and special-status plant species, their habitats, and other sensitive habitats on April 17, April 19-21, May 28-31, June 25-28, August 30, and September 4-7, 2012. An area of approximately 20 acres was surveyed as exact well sites were not determined at the time of our surveys. As a result, a buffer area significantly larger than 250 feet was surveyed (see Figure 2). Wildlife species that we observed are discussed in text format and are presented in Table 4. A list of plant species observed during our surveys is presented in Table 5.

We used portions of standard agency approved methods to survey for special-status wildlife species. These methods are identified in the following references: CNPS (CNPS 1991, 2001b), CDFW (1984, 1990, 1995, 2000, 2003, 2009, and 2012a), Orloff (1987), Nelson (1987), The California Burrowing Owl Consortium (1993), Tollestrup (1976), and USFWS (1989, 1995, 1996b, 1999, 2000, and 2011). In addition, guidelines given in Section 402.12 of the Federal Register Vol. 51, No. 106, pp. 19960-19963 for Biological Assessments were used to prepare this report. Surveys were conducted to identify the following:

**Table 2**  
**Special-Status Species Potentially Occurring in the Project Area**

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur in Project Area
<i>Mammals</i>					
Pallid bat	<i>Antrozous pallidus</i>	-	CSC	Found in deserts, grasslands, shrublands, woodlands, and forests. Most common in dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Potentially present. Potential foraging habitat for this species is present within the proposed project sites and buffer areas. However, no maternity or nesting sites observed during biological surveys. This species was not observed during biological surveys. This species has not been documented within the proposed project area (CDFW 2012) (see Figure 3).
Tipton kangaroo rat	<i>Dipodomys nitratoides nitratoides</i>	FE	CE	Found in saltbush scrub and sink scrub communities in the Tulare Lake Basin of the southern San Joaquin Valley. Require soft friable soils which escape seasonal flooding. Dig burrows in elevated soil mounds at bases of shrubs.	Potentially present. Potential habitat for this species was observed in annual grassland habitat within the proposed project sites, proposed access roads, proposed flow lines, and buffer areas. Potential burrows were observed within all areas surveyed. No individual Tipton kangaroo rats or signs of their activity observed during surveys. This species has not been documented within the proposed project area (CDFW 2012) (see Figure 3).
Tulare grasshopper mouse	<i>Onychomys torridus tularensis</i>	-	CSC	Hot, arid valleys and scrub deserts in the southern San Joaquin Valley. Require abundant supply of insects.	Potentially present. Potential habitat for this species was observed in annual grassland habitat within the proposed project sites, proposed access roads, proposed flow lines, and buffer areas. Potential burrows were observed within all areas surveyed. No individual San Joaquin pocket mice or signs of their activity observed during surveys. This species has not been documented within the proposed project area (CDFW 2012) (see Figure 3).
San Joaquin pocket mouse	<i>Perognathus inornatus</i>	-	CSC	This species typically occurs on fine textured sandy soils on ridge tops and hillsides supporting grasslands, saltbush scrub, or blue oak savannah. <i>P. inornatus</i> is distributed within the Central Valley from Yolo and Sutter counties to the southern-most portions of the San Joaquin Valley and within and near the dry interior valleys of the Coast Range (e.g., Salinas Valley and	Potentially present. Potential habitat for this species was observed in annual grassland habitat within the proposed project sites, proposed access roads, proposed flow lines, and buffer areas. Potential burrows were observed within all areas surveyed. No individual San Joaquin pocket mice or signs of their activity observed during surveys. This species has not been documented within the proposed project area (CDFW 2012) (see Figure 3).

**Table 2**  
**Special-Status Species Potentially Occurring in the Project Area**

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur in Project Area
American badger	<i>Taxidea taxus</i>	-	CSC	Carrizo Plain). Found in drier open stages of most shrub, forest, and herbaceous habitats with friable soils. Require uncultivated ground. Prey on burrowing rodents. The American badger digs their own burrows.	Potentially present. Potential habitat for this species was observed in annual grassland habitat within the proposed project sites and buffer areas during biological surveys. No potential or known burrows of this species were observed within the areas surveyed. No individual San Joaquin kit foxes or signs of their activity observed during surveys. This species has not been documented within the proposed project area (CDFW 2012) (see Figure 3).
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	FE	CT	Inhabit annual grasslands or grassy open stages with scattered shrubby vegetation. Require loose-textured sandy soils for burrowing, and a suitable prey base.	Potentially present. Potential habitat for this species was observed in annual grassland habitat within the proposed project sites and buffer areas during biological surveys. No potential or known burrows of this species were observed within the areas surveyed. No individual San Joaquin kit foxes or signs of their activity observed during surveys. This species has been documented approximately 0.95 miles northwest of the proposed Bloemer 2 well site (CDFW 2012) (see Figure 3).
<b>Birds</b>					
Tricolored blackbird	<i>Agelaius tricolor</i>	-	CSC	Highly colonial species. Most numerous in Central Valley and Vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of their colony.	No potential. No potential habitat found within the proposed project sites or buffer areas.
Burrowing owl	<i>Athene cunicularia</i>	-	CSC	Open grasslands, prairies, farmlands, and deserts.	Potentially present. Potential habitat for this species was observed within annual grassland habitat within the proposed project sites and buffer areas. Potential burrows were observed within all areas surveyed (California ground squirrel burrows). No burrowing owls were observed during biological surveys, nor were any signs of their presence observed. This species has not been documented within the proposed project area (CDFW 2012) (see Figure 3).

**Table 2**  
**Special-Status Species Potentially Occurring in the Project Area**

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur in Project Area
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	FE	CE	Riparian woodlands in southern California.	No potential. No potential habitat found within the proposed project sites or buffer areas.
<b><i>Invertebrates</i></b>					
Vernal pool fairy shrimp	<i>Branchinecta lynchei</i>	FT	-	Found in short-lived seasonal cool-water vernal pools with low to moderate dissolved solids.	No potential. No potential habitat found within the proposed project sites or buffer areas.
Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	FT	-	Occurs only in the Central Valley of California, in association with blue elderberry ( <i>Sambucus mexicana</i> ). Prefers to lay eggs in elderberries 2-8 inches in diameter; some preference shown for stressed elderberry shrubs.	No potential. No potential habitat (elderberry bushes) found within the proposed project sites or buffer areas.
<b><i>Amphibians and Reptiles</i></b>					
Western pond turtle	<i>Emys marmorata</i>	-	CSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Require basking sites and suitable upland habitat (sandy banks or grassy open fields) for egg-laying.	No potential. No potential habitat found within the proposed project sites or buffer areas.
Blunt-nosed leopard lizard	<i>Gambelia sila</i>	FE	CE, Fully Protected	Resident of sparsely vegetated alkali and desert scrub habitats, in areas of low topographic relief. Seeks cover in mammal burrows, under shrubs or structures such as fence posts. They do not excavate their own burrows.	Potentially present. Potential habitat for this species was observed in annual grassland habitat within the proposed project sites, proposed access roads, proposed flow lines, and buffer areas. Potential burrows were observed within all areas surveyed. Protocol-level surveys were conducted, and no individual blunt-nosed leopard lizards or signs of their activity observed during surveys. This species has been documented approximately 0.75 miles northwest of the proposed Bloemer 2 well site (CDFW 2012) (see Figure 3).
California red-legged frog	<i>Rana draytonii</i>	FT	CSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11 to 20 weeks of permanent water for larval development. Must have access to aestivation habitat, consisting of small mammal burrows and moist leaf litter.	No potential. No potential habitat found within the proposed project sites or buffer areas.
Giant garter snake	<i>Thamnophis gigas</i>	FT	CT	Prefers fresh water marsh and low	No potential. No potential habitat found within the

**Table 2**  
**Special-Status Species Potentially Occurring in the Project Area**

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur in Project Area
				gradient streams. Has adapted to drainage ditches and irrigation canals.	proposed project sites or buffer areas.
<b>Plants</b>					
Round-leaved filaree	<i>California macrophylla</i>	-	List 1B	Cismontane woodland, valley and Foothill Grassland on clay soils. Elevational range: 15 to 1,200 meters. Blooming period: March through May.	Potentially present. Potential habitat for this species was observed in annual grassland habitat within the proposed project sites and buffer areas. No individuals of this species were observed during surveys. This species has not been documented within the proposed project area (CDFW 2012) (see Figure 3).
California jewel-flower	<i>Caulanthus californicus</i>	FE	CE/List 1B	Chenopod scrub, pinyon and juniper woodlands, and valley and foothill grasslands. Elevation range: 61 to 1,000 meters. Blooming period: February through May.	Potentially present. Potential habitat for this species was observed in annual grassland habitat within the proposed project sites and buffer areas. No individuals of this species were observed during surveys. This species has not been documented within the proposed project area (CDFW 2012) (see Figure 3).
Vasek's clarkia	<i>Clarkia tembloriensis ssp. calientensis</i>	-	List 1B	Valley and foothill grasslands. Elevation range: 275 to 500 meters. Blooming period: April.	Potentially present. Potential habitat for this species was observed in annual grassland habitat within the proposed project sites and buffer areas. No individuals of this species were observed during surveys. This species has not been documented within the proposed project area (CDFW 2012) (see Figure 3).
Rose-flowered larkspur	<i>Delphinium purpusii</i>	-	List 1B	Chaparral, cismontane woodland, and pinyon and juniper woodlands. Elevation range: 300 to 1,340 meters. Blooming period: April through May.	No potential. No suitable habitat found within the proposed project sites or buffer areas.
Striped adobe-lily	<i>Fritillaria striata</i>	-	CE, List 1B	Cismontane woodland and valley and foothill grassland. Elevation range: 135 to 1,455 meters. Blooming period: February through April.	Potentially present. Potential habitat for this species was observed in annual grassland habitat within the proposed project sites and buffer areas. No individuals of this species were observed during surveys. This species has not been documented within the proposed project area (CDFW 2012) (see Figure 3).
Shevock's golden aster	<i>Heterotheca shevockii</i>	-	List 1B	Chaparral, cismontane woodland, and riparian woodland. Elevational range: 230 to 900 meters. Blooming period: August through November.	No potential. No suitable habitat found within the proposed project sites or buffer areas.

**Table 2**  
**Special-Status Species Potentially Occurring in the Project Area**

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur in Project Area
Pale-yellow Layia	<i>Layia heterotricha</i>	-	List 1B	Pinyon and juniper woodland, valley and foothill grassland, and cismontane woodland. Elevational range: 300 to 1,750 meters. Blooming period: March through June.	Potentially present. Potential habitat for this species was observed in annual grassland habitat within the proposed project sites and buffer areas. No individuals of this species were observed during surveys. This species has not been documented within the proposed project area (CDFW 2012) (see Figure 3).
Comanche Point layia	<i>Layia leucopappa</i>	-	List 1B	Chenopod scrub and valley and foothill grassland. Elevational range: 100 to 350 meters. Blooming period: March through April.	Potentially present. Potential habitat for this species was observed in annual grassland habitat within the proposed project sites and buffer areas. No individuals of this species were observed during surveys. This species has not been documented within the proposed project area (CDFW 2012) (see Figure 3).
Calico monkeyflower	<i>Mimulus pictus</i>	-	List 1B	Broadleaved upland forest and Cismontane woodland. Elevational range: 100 to 1,300 meters. Blooming period: March through May.	No potential. No suitable habitat found within the proposed project sites or buffer areas.
San Joaquin woollythreads	<i>Monolopia congdonii</i>	FE	List 1B	Chenopod scrub, valley and foothill grasslands. Elevation range: 60 to 800 meters. Blooming period: February through May.	Potentially present. Potential habitat for this species was observed in annual grassland habitat within the proposed project sites and buffer areas. No individuals of this species were observed during surveys. This species has not been documented within the proposed project area (CDFW 2012) (see Figure 3).
Piute Mountains navarretia	<i>Navarretia setiloba</i>	-	List 1B	Cismontane woodland, pinyon and juniper woodland, and valley and foothill grassland. Elevational range: 305 to 2,100 meters. Blooming period: April through July.	Potentially present. Potential habitat for this species was observed in annual grassland habitat within the proposed project sites and buffer areas. No individuals of this species were observed during surveys. This species has been documented approximately 1.1 miles southwest of the proposed Kirschenman 2 well site (CDFW 2012) (see Figure 3).
Bakersfield cactus	<i>Opuntia treleasei</i>	FE	CE, List 1B	Chenopod scrub, cismontane woodland, and valley and foothill grassland. Elevational range: 120 to 1,140 meters. Blooming period: April through May.	Potentially present. Potential habitat for this species was observed in annual grassland habitat within the proposed project sites and buffer areas. No individuals of this species were observed during surveys. This species has not been documented within the proposed project area

**Table 2**  
**Special-Status Species Potentially Occurring in the Project Area**

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur in Project Area
					(CDFW 2012) (see Figure 3).
San Joaquin adobe sunburst	<i>Pseudobahia peirsonii</i>	FT	CE, List 1B	Valley and foothill grassland and cismontane woodland. Elevational range: 90 to 800 meters. Blooming period: March through April.	Potentially present. Potential habitat for this species was observed in annual grassland habitat within the proposed project sites and buffer areas. No individuals of this species were observed during surveys. This species has not been documented within the proposed project area (CDFW 2012) (see Figure 3).
Oil neststraw	<i>Stylocline citroleum</i>	-	List 1B	Chenopod scrub and coastal scrub. Found on flat areas with clay soils in oil-producing areas. Elevation range: 50 to 400 meters. Blooming period: March through April.	No potential. No suitable habitat found within the proposed project sites or buffer areas.
<b><i>Sensitive Habitats</i></b>					
Stabilized Interior Dunes (not present)					

**Status Codes:**

**Federal**

FE = Federally listed as Endangered

FT = Federally listed as Threatened

FC = Federal Candidate species

**California Native Plant Society**

CNPS 1B = Plants rare or endangered in California and elsewhere

CNPS 2 = Plants rare or endangered in California, but more common elsewhere

CNPS 3 = Plants about which we need more information

CNPS 4 = Plants of limited distribution; a watch list.

Status and habitat information from California Natural Diversity Database (CDFW 2012), California Native Plant Society Electronic Inventory (CNPS 2012), and USFWS Online Endangered Species Database (USFWS 2012).

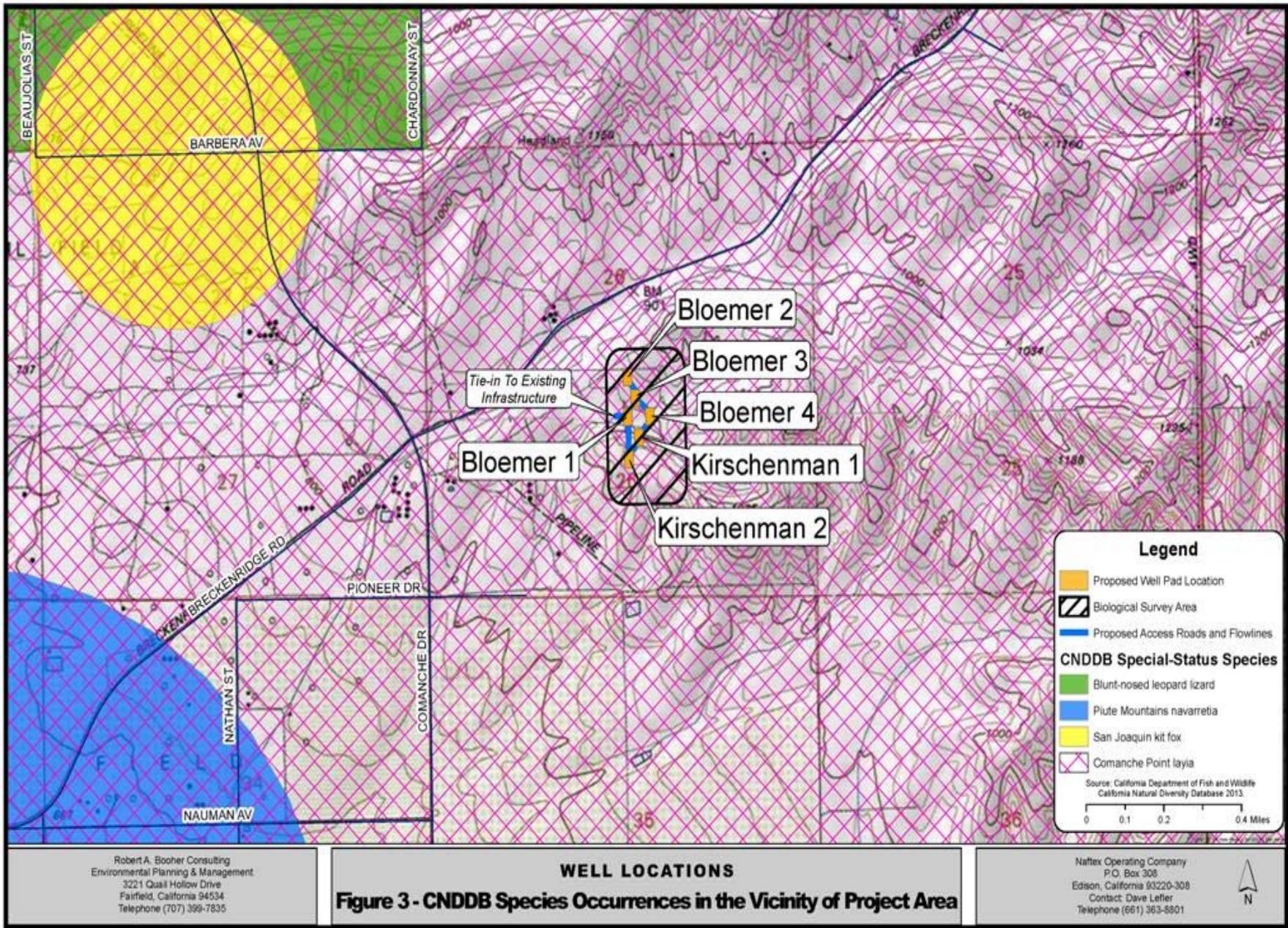
**State**

CE = California listed as Endangered

CT = California listed as Threatened

CR = California listed as Rare

CFP = California Fully Protected



- Suitability of habitat(s) to support special-status wildlife species
- Presence of known and potential San Joaquin kit fox dens
- Presence of blunt-nosed leopard lizard (BNLL) habitat and individuals
- Sightings, burrows, and "sign", of sensitive small mammal species
- Sightings, burrows, and "sign", of western burrowing owls and other sensitive avian species
- Vegetation association, habitat types, and special-status plant species
- Dominant plant canopy and ground cover species
- Habitat condition and quality
- On-site, adjacent, and surrounding land uses

We conducted surveys by walking parallel meandering transects spaced 30 to 50 feet apart to identify special-status wildlife species. Presence of these species was confirmed by direct observation or by identification of "sign" (e.g., tracks, scats, dens and/or burrows, etc.) unique to a particular species.

**San Joaquin Kit Fox** - We conducted diurnal surveys for San Joaquin kit fox dens and their "sign." Scats measuring 15 to 20 millimeter in diameter of appropriate canid shape was attributed to kit fox. No other vulpid is known to inhabit the project area, and scats larger than 20 millimeter in diameter probably belong to coyote (*Canis latrans*) or domestic dog (*Canis familiaris*). Canid tracks up to 45 by 38 millimeter in size were attributed to kit fox. Tracks larger than this are probably attributable to coyote or domestic dog (Murie 1974).

We conducted surveys along transects spaced 30 to 50 feet apart following CDFW Approved Survey Methodologies for Sensitive Species (CDFW 1990) and by USFWS guidelines (USFWS 1989, 1995, 1999, and 2011). If San Joaquin kit fox "sign" and dens were identified, they were recorded and mapped on USGS topographic maps. In addition, we used knowledge gained from past experiences working with numerous kit fox dens and their "sign" (tracks, scats, etc.) during radio telemetry studies, and kit fox den identifications during other preactivity surveys. We classified underground dens according to the following USFWS kit fox den definitions (USFWS 2011):

“Known Den”: Any existing natural den or manmade structure that is used or has been used at any time in the past by a San Joaquin kit fox. Evidence of use may include historical records, past or current radiotelemetry or spotlighting data, kit fox sign such as tracks, scat, and/or prey remains, or other reasonable proof that a given den is being or has been used by a kit fox. The Service discourages use of the terms “active” and “inactive” when referring to any kit fox den because a great percentage of occupied dens show no evidence of use, and because kit foxes change dens so often, with the result that the status of a given den may change frequently and abruptly.

“Potential Den”: Any subterranean hole within the species’ range that has entrances of appropriate dimensions for which available evidence is insufficient to conclude that it is being used or has been used by a kit fox. Potential dens shall include the following: (1) any suitable subterranean hole; or (2) any den or burrow of another species (e.g., coyote, badger, red fox, or ground squirrel) that otherwise has appropriate characteristics for kit fox use.

“Natal or Pupping Den”: Any den used by kit foxes to whelp and/or rear their pups. Natal/pupping dens may be larger with more numerous entrances than dens occupied exclusively by adults. These dens typically have more kit fox tracks, scat, and prey remains in the vicinity of the den, and may have a broader apron of matted dirt and/or vegetation at one or more entrances. A natal den, defined as a den in which kit fox pups are actually whelped but not necessarily reared, is a more restrictive version of the pupping den. In practice, however, it is difficult to distinguish between the two, therefore, for purposes of this definition either term applies.

“Atypical Den”: Any manmade structure which has been or is being occupied by a San Joaquin kit fox den. Atypical dens may include pipes, culverts, and diggings beneath concrete slabs and buildings.

**BNLL** – Protocol-level surveys for adult BNLL were conducted from April 17 to June 28, 2012 within the project sites and buffer areas for presence of BNLL and to evaluate suitability of habitat to support this species. Fall surveys for hatchling and juvenile BNLL were conducted from August 30 to September 7, 2012. Surveys were conducted in accordance with the *Approved Survey Methodology for the Blunt-Nosed Leopard Lizard* (CDFW 2004).

Two qualified biologists walked parallel adjacent transects approximately 30 to 50 feet apart. Transects were walked in a north-south orientation to minimize glare from the sun. Surveys were conducted when the air temperature ranged between 77 and 95 degrees Fahrenheit. Surveys were conducted between sunrise and 2:00 PM when the above air temperature criteria were met. Surveys were not conducted on overcast days (cloud cover > 90%) or when sustained wind velocity exceeded 10 miles per hour. Surveys were conducted by foot, and biologists surveyed all areas with potential BNLL habitat. Biologists stopped periodically and scanned transects for BNLL using close-focusing binoculars.

Both spring adult surveys (between April 15 and July 15) and fall hatchling surveys (between August 1 and September 15) were conducted. BNLL surveys were conducted for 12 days within the adult optimal survey period (April 15 to July 15), with a maximum of four (4) survey days per week and 8 days within any 30-day time period. BNLL hatchling surveys were conducted for five (5) days.

A report detailing the findings of these surveys is attached as Appendix B to this document.

**Other Sensitive Wildlife** - We surveyed for evidence of pallid bat, Tipton kangaroo rat, Tulare grasshopper mouse, San Joaquin pocket mouse, American badger, burrowing owl, southwestern willow flycatcher, and other targeted species of concern (see Table 2) while conducting transect surveys. This consisted of recording sightings of the species and/or their "sign" (tracks, scats, dens and/or burrows, etc.).

## **SPECIAL-STATUS PLANT SURVEYS**

**Literature Review:** Prior to conducting field surveys, we reviewed information from published and unpublished sources to determine special-status plant species known, or that have potential to occur in the vicinity of the proposed project sites. Special-status plant species include species listed as Endangered, Threatened, or Rare by USFWS (1990, 2000, and 2012), or by CDFW (1989, 2009, and 2012), and species listed by Smith and Berg (1988) and CNPS (2001 and 2012). Sources consulted for information on the distribution of special-status plant species include regional and local floras (Abrams 1923, 1944, 1951, Abrams and Ferris 1960, Hickman 1996, Twisselmann 1956, 1967, Moe 1995, Munz and Keck 1968), occurrence records and maps from CNDDDB (CDFW 2012), county and USGS quadrangle records in Smith and Berg (1988), CNPS (2001 and 2012), and occurrence records from previous surveys in the region. In addition, we consulted Taylor (1987) and Taylor and Davilla (1986) for locations of endemic San Joaquin Valley listed plant species that have potential to occur within the area surrounding the proposed project.

**Plant Species Surveys and Identification -** We surveyed 30 to 50 feet wide transects within the proposed project sites and buffer areas on April 17, April 19-21, May 28-31, June 25-28, August 30, and September 4-7, 2012. We identified vascular plant species encountered in the surveys, which were in identifiable condition using standard manuals (Abrams 1923, 1944, 1951, Abrams and Ferris 1960, Hickman 1996, Moe 1995, Munz and Keck 1968 and Twisselmann 1956, 1967). Scientific nomenclature used for plant species in this report follows Hickman (1996), Munz and Keck (1968), and Kartesz and Kartesz (1980). We used modifications of Cheatham and Haller (1975) and Holland (1986) to describe habitat types found on the proposed project sites. Our plant surveys were conducted during the appropriate blooming period of all targeted special-status plant species identified in Table 2 as potentially occurring within the proposed project sites and buffer areas.

## **RESULTS AND DISCUSSION**

Results of our biological surveys for the proposed project are presented below. The following discussion focuses on special-status wildlife species that could potentially occur within the proposed project sites and buffer areas. Special-status wildlife species that have no potential to occur within the proposed project sites or buffer areas are not discussed further. Wildlife species observed during our surveys are presented in Table 4.

**San Joaquin Kit Fox -** We observed no potential burrows within the proposed project sites and buffer areas that could be utilized by this species during our biological surveys. There were no “active signs” (i.e., adult and puppy scat, prey remains, tracks, fur, etc.) of use by San Joaquin kit fox observed during surveys. In addition, no known dens of this species were observed during biological surveys of the proposed project sites or buffer areas. San Joaquin kit foxes have been documented approximately 0.95 miles northwest of the proposed Bloemer 2 well site (CDFW 2012) (see Figure 3).

**American Badger -** We observed no potential burrows within the proposed project sites and buffer areas that could be utilized by this species during our biological surveys. There were no “active signs” (i.e., adult and puppy scat, prey remains, tracks, fur, etc.) of use by American

badgers observed during surveys. In addition, no known dens of this species were observed during biological surveys of the proposed project sites or buffer areas. American badgers have not been documented within the proposed project area by CNDDDB (CDFW 2012) (see Figure 3).

**Sensitive Small Mammal Species** - We found no evidence (i.e., pit cache holes, scats, tracks, tail drags, etc.) of Tipton kangaroo rats within the proposed project sites or their buffer areas during biological surveys. We observed potential burrows (California ground squirrel burrows) within the proposed project sites or buffer areas. We found appropriate vegetative communities for this species (annual grassland habitat) within all areas surveyed during biological surveys. No individual Tipton kangaroo rats were observed during surveys. This species has not been documented within the proposed project area by CNDDDB (CDFW 2012) (see Figure 3).

Potential habitat for Tulare grasshopper mice and San Joaquin pocket mice was observed in annual grassland habitat within the proposed project sites and buffer areas during biological surveys. We observed potential refuge burrows (California ground squirrel burrows) within the proposed project sites or buffer areas. We found no evidence (i.e., scat, tracks, etc.) of these species (recent and/or past use) within the proposed project sites or their buffer areas. No individual mice were observed during surveys. These species have not been documented within the proposed project area by CNDDDB (CDFW 2012) (see Figure 3).

We observed potential foraging habitat for the pallid bat within all areas surveyed during biological surveys. However, we did not observe any known or potential maternity or roosting sites during biological surveys. No individual pallid bats were observed during biological surveys. This species has not been documented within the project area (CDFW 2012) (see Figure 3). This species may forage intermittently throughout the project area, but is not expected to nest.

**Blunt-Nosed Leopard Lizard (BNLL)** – No BNLLs were observed during protocol level surveys conducted within the proposed project sites and buffer areas. We recorded western whiptails (*Aspidoscelis tigris*), western fence lizards (*Sceloporus occidentalis*), and common side-blotched lizards (*Uta stansburiana*) within the proposed project sites and buffer areas during surveys. We observed burrows within the proposed project sites and buffer areas that were large enough (entrance size, width, etc.) to provide refugia for BNLL. Table 3 below provides the results of BNLL surveys as well as the survey dates and weather conditions during our surveys at the proposed project sites.

Chesmore (1980 and 1981) identified specific vegetation associations that could be used to assist in the identification of preferred habitat for BNLL: Arabian grass (*Schismus arabicus* and *S. barbatus*) is positively correlated with the occurrence of BNLL while red brome (*Bromus rubens*) is negatively correlated. While we did not take quantitative measurements of vegetation during our surveys, red brome was observed as being somewhat dense in the survey area. Dense red brome growth can become problematic for BNLL foraging. *Gambelia sila* is one of a number of species in the San Joaquin Valley whose habitat has been greatly modified by invasive annual grasses and might benefit from management actions that would keep habitats open (Germano et al. 2001).

We observed an adequate prey base of grasshoppers and beetles within the project area. In general, *G. sila* seems to be an opportunistic predator that eats whatever is most abundant and it is able to catch (Germano et al. 2007). It is known to eat invertebrates and lizards (Montanucci 1965, 1967), including its own young (Montanucci 1965, Germano and Williams 1994).

We evaluate the project sites and buffer areas as being suitable habitat in its current state for BNLL because suitable burrows that provide refuge cover for this species occur within the proposed project sites and buffer areas. Protocol-level surveys were conducted and no BNLL were detected.

**Sensitive Avian Species** - Potential habitat for burrowing owls was observed in annual grassland habitat within the proposed project sites and buffer areas during biological surveys. Potential burrows (California ground squirrel burrows) that could be used by this species for nesting activities were observed during biological surveys in all areas surveys. However, no burrowing owls were observed during biological surveys, and no evidence of their presence (white wash, feathers, small mammal bones, owl pellets, etc.) was observed during surveys. This species has not been documented by CNDDDB within the proposed project area (CDFW 2012) (see Figure 3).

A number of avian species protected under the Federal Migratory Bird Treaty Act were observed foraging during field surveys (see Table 4 below for a list of these species). No active or inactive nesting sites were observed during biological surveys. No potential nesting habitat for migratory avian species was observed within the proposed project sites and buffer areas during biological surveys. Therefore, migratory avian species have no potential to nest in the proposed project sites or buffer areas.

**Incidental Wildlife** – Wildlife species that we recorded during our focused surveys for special-status species are listed in Table 4 below.

**Special-Status Plants** – No special-status plant species were identified during the course of botanical surveys within the proposed project sites and buffer areas. Surveys were conducted during the appropriate blooming period of all of the targeted special-status plant species identified in Table 2 as potentially occurring within the proposed project sites and buffer areas. The annual grassland habitat found within the proposed project sites and buffer areas is disturbed due to ongoing cattle grazing and agricultural activities, and the likelihood of special-status plant species occurring within the proposed project sites is unlikely. Additionally, non-native weedy grassland species within the proposed project sites and buffer areas likely out compete special-status species that could occur within the proposed project sites and buffer areas.

**Table 3 – Blunt-Nosed Leopard Lizard Survey Results**

<b>DATE</b>	<b>START TIME</b>	<b>END TIME</b>	<b>START AIR TEMP</b>	<b>END AIR TEMP</b>	<b># BNLL OBSERVED Adults/Hatchlings</b>	<b>NUMBER OF BIOLOGIST</b>
4/17/12	1230	1500	80	87	0/0	2
4/19/12	1141	1349	77	80	0/0	2
4/20/12	1019	1245	80	87	0/0	2
4/21/12	0945	1150	84	93	0/0	2
5/28/12	1105	1400	78	83	0/0	2
5/29/12	1115	1345	81	87	0/0	4
5/30/12	1050	1250	81	87	0/0	2
5/31/12	1105	1310	88	95	0/0	2
6/25/12	1340	1428	90	92	0/0	4
6/26/12	1020	1320	81	89	0/0	3
6/27/12	0800	1140	77	95	0/0	2
6/28/12	0745	0850	77	82	0/0	4
8/30/12	0740	1000	77	89	0/0	2
9/4/12	0740	0900	78	85	0/0	4
9/5/12	0740	1015	78	90	0/0	2
9/6/12	0730	1015	77	95	0/0	2
9/7/12	0745	1012	77	92	0/0	2

**Habitat Types** – Habitat types observed during field surveys are described further below:

Ruderal/Disturbed

This habitat type was observed within and along the edges of the existing access road from which the proposed access roads to the proposed well sites would be constructed. Common plant species found in this community were composed primarily of weedy non-native and native species. Vegetative species observed included slender wild oats (*Avena barbata*), wild oat (*Avena fatua* L.), black mustard (*Brassica nigra* [L.] Koch), soft chess brome (*Bromus hordeaceus*), rip-gut brome (*Bromus rigidus* Roth), common mallow (*Malva neglecta* Wallr.), pineapple-weed (*Matricaria matricarioides*), perennial sowthistle (*Sonchus arvensis* L.), spiny sowthistle (*Sonchus asper* [L.] Hill), and annual sowthistle (*Sonchus oleraceus* L.).

Wildlife use of this community is limited due to the monocultural and weedy nature of plant species present. Although the diversity of wildlife is limited, species that do occur in the habitat type are often abundant and well adapted to the presence of humans.

**Table 4**  
**Wildlife Species Observed within Proposed Project Area**

**Birds**

Turkey vulture ( <i>Cathartes aura</i> )	American crow ( <i>Corvus brachyrhynchos</i> )
Common raven ( <i>Corvus corax</i> )	House sparrow ( <i>Passer domesticus</i> )
Western meadowlark ( <i>Sturnella neglecta</i> )	Mourning dove ( <i>Zenaida macroura</i> )

**Mammals**

Black-tailed jackrabbit ( <i>Lepus californicus</i> )	California ground squirrel ( <i>Otospermophilus beecheyi</i> )
Desert cottontail ( <i>Sylvilagus audubonni</i> )	

**Reptiles**

Western whiptail ( <i>Aspidoscelis tigris</i> )	Pacific gopher snake ( <i>Pituophis catenifer</i> )
Western fence lizard ( <i>Sceloporus occidentalis</i> )	Common side-blotched lizard ( <i>Uta stansburiana</i> )

**Table 5**  
**Plants Observed within the Project Area**

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Blow wives - <i>Achyrachaena mollis</i>	Fiddleneck - <i>Amsinckia intermedia</i>
Ranchers fireweed - <i>Amsinckia menziesii</i>	Mt. Diablo locoweed - <i>Astragalus oxyphysus</i>
Saltbush - <i>Atriplex polycarpa</i>	Slender wild oats - <i>Avena barbata</i>
Wild oat - <i>Avena fatua</i> L.	Black mustard - <i>Brassica nigra</i> (L.) Koch
Soft chess brome - <i>Bromus hordeaceus</i>	Red brome - <i>Bromus madritensis ssp. rubens</i>
Rip-gut brome - <i>Bromus rigidus</i> Roth	Red maids - <i>Calandrinia ciliata</i>
Shepherd's-purse - <i>Capsella bursa-pastoris</i>	Turkey mullein - <i>Croton setigerus</i>
Redstem filaree - <i>Erodium cicutarium</i>	Broadleaf filaree - <i>Erodium botrys</i>
California poppy - <i>Eschscholzia californica</i>	Hare barley - <i>Hordeum leporinum</i>
Common mallow - <i>Malva neglecta</i> Wallr.	Horehound - <i>Marrubium vulgare</i>
Pineapple-weed - <i>Matricaria matricariodes</i>	Perennial sowthistle - <i>Sonchus arvensis</i> L.
Spiny sowthistle - <i>Sonchus asper</i> (L.) Hill	Annual sowthistle - <i>Sonchus oleraceus</i> L.
Vinegar weed - <i>Trichostema lanceolatum</i>	Red clover - <i>Trifolium pratense</i>

Non-Native Annual Grassland

Non-native annual grassland was observed covering all six (6) proposed well sites, the proposed access roads to the six (6) proposed well sites, proposed flow lines, and the buffer areas of the proposed well sites, access roads, and flow lines. Common species found in this vegetative community were composed of introduced grasses and broadleaf weedy species. Plant species observed during field surveys included fiddleneck (*Amsinckia intermedia*), ranchers fireweed (*Amsinckia menziesii*), Mt. Diablo locoweed (*Astragalus oxyphysus*), saltbush (*Atriplex polycarpa*), slender wild oats (*Avena barbata*), wild oat (*Avena fatua* L.), black mustard (*Brassica nigra* [L.] Koch), soft chess brome (*Bromus hordeaceus*), red brome (*Bromus madritensis ssp. rubens*), rip-gut brome (*Bromus rigidus* Roth), red maids (*Calandrinia ciliata*), shepherd's-purse (*Capsella bursa-pastoris*), turkey mullein (*Croton setigerus*), redstem filaree (*Erodium cicutarium*), broadleaf filaree (*Erodium botrys*), California poppy (*Eschscholzia californica*), hare barley (*Hordeum leporinum*), horehound (*Marrubium vulgare*), vinegar weed (*Trichostema lanceolatum*), and red clover (*Trifolium pratense*).

Wildlife species observed in this community during field surveys included western whiptail (*Aspidoscelis tigris*), turkey vulture (*Cathartes aura*), American crow (*Corvus brachyrhynchos*),

common raven (*Corvus corax*), black-tailed jackrabbit (*Lepus californicus*), California ground squirrel (*Otospermophilus beecheyi*), house sparrow (*Passer domesticus*), Pacific gopher snake (*Pituophis catenifer*), western fence lizard (*Sceloporus occidentalis*), western meadowlark (*Sturnella neglecta*), desert cottontail (*Sylvilagus audubonni*), common side-blotched lizard (*Uta stansburiana*), and mourning dove (*Zenaida macroura*).

**Habitat Conservation and Natural Community Conservation Plans** – There are no adopted Habitat Conservation Plans, Natural Community Conservation Plans or other approved local, regional, or state habitat conservation plans in the project area.

## **ANALYSIS OF POTENTIAL IMPACTS**

The biological assessment conducted for the proposed project found that no special-status animal or plant species were present within the proposed project sites or buffer areas. However, suitable habitat for sensitive plant and animal species was observed within both the project sites and buffer areas during biological surveys. No riparian, wetland, stream, vernal pool, or other sensitive community types were observed during the biological assessment.

Direct mortality or injury to common wildlife and plant populations could occur during ground disturbance activities associated with implementation of the proposed project. Small vertebrate, invertebrate, and plant species are particularly prone to impact during project implementation because they are much less to non-mobile, and cannot easily move out of the path of project activities. Other more mobile wildlife species, such as most birds and larger mammals, can avoid project-related activities by moving to other adjacent areas temporarily. Increased human activity and vehicle traffic in the vicinity may disturb some wildlife species. However, common wildlife species have likely become acclimated to on-going ranching and oil and gas exploration and production activities. Because common wildlife species found in the project area are locally and regionally common, potential impacts to these resources are considered less than significant. Therefore, no avoidance or minimization measures are proposed at this time.

Implementation of the proposed project could potentially impact individual and nesting burrowing owls should they become established within the proposed project sites and buffer areas prior to project implementation. RAB Consulting would like to note that this species was not observed during biological surveys. Impacts to this species could occur through crushing by construction equipment during the construction of the proposed well sites and the proposed access roads. Actively nesting burrowing owls could also be affected due to noise and vibration from project activities if nests are located closer than 500 meters to the proposed well sites and proposed access roads; project related noise and vibration could cause the abandonment of active nest sites. Impacts to this species would be considered significant. Avoidance and minimization measures to protect these species from potential impacts are described further in the ***Proposed Avoidance and Minimization Measures*** section.

No evidence of San Joaquin kit fox or American badgers, or any potential/known burrows was observed within areas proposed for project activities during biological surveys. However, San Joaquin kit foxes and American badgers have the potential to become established in the proposed project sites and buffer areas prior to project implementation. Implementation of the proposed

project could potentially result in significant impacts on individual American badgers and San Joaquin kit foxes should they take up residence in the proposed project sites and buffer areas prior to project implementation. Impacts to these species would likely occur through one of the following ways:

- Through crushing or injury of individual San Joaquin kit foxes or American badgers if they are present within proposed project work areas during project implementation. This could result in direct mortality to live individuals or small populations of these species.
- Through the destruction of burrows if they are excavated by San Joaquin kit foxes or American badgers within disturbance areas prior to proposed project implementation. As stated previously, no potential or known dens were identified within proposed disturbance areas or buffer areas during biological surveys. No signs were observed that would indicate the presence of this species within the proposed project sites or buffer areas.
- Through visual, noise, and vibration impacts. If San Joaquin kit foxes or American badgers become established in burrows adjacent to the proposed project sites, the presence of construction personnel, and the noise and vibration caused by construction activities could lead to the abandonment of actively used burrows/dens. As discussed previously, no potential or known burrows were identified within the proposed project sites and buffer areas. No “signs” (tracks, scats, active digging, etc.) of either species were documented. Proposed project activities could cause the abandonment of occupied burrows if they become established prior to project implementation.

Impacts to American badgers and San Joaquin kit foxes and their potential burrows/dens would be considered a potentially significant impact. Minimization and avoidance measures to protect these species from potential impacts are described further in the ***Recommended Minimization and Avoidance Measures*** section.

Implementation of the proposed project has the potential to impact Tipton kangaroo rat, Tulare grasshopper mice, and San Joaquin pocket mice by causing direct mortality of individuals of these species by crushing due to use of construction equipment. Individuals of this species could also be crushed or buried in potential burrows within the proposed project sites and buffer areas. Potential burrows (California ground squirrel burrows) were observed throughout the proposed project sites and buffer areas during biological surveys. These burrows could provide potential refuge burrows for these species. It should be noted that no evidence was observed of any of these species presence during biological surveys, and these species are expected to be absent from the proposed project sites and buffer areas. However, the potential exists that these species could become established within the proposed project sites prior to project implementation. Impacts to these species would be considered a significant impact. Avoidance and minimization measures to protect nesting avian species from potential impacts are described further in the ***Recommended Avoidance and Minimization Measures*** section.

BNLL are not expected to be impacted by the proposed project. Potential habitat for these species was observed in annual grassland habitat within the proposed project sites and buffer

areas during biological surveys. Protocol-level biological surveys were conducted within these areas; however, no BNLL were observed during these surveys. Therefore, this species is expected to be absent from the proposed project sites and buffer areas, and no impacts to this species are anticipated as a result of proposed project implementation.

Traffic, consisting predominantly of ranching and oil and gas exploration and production vehicles and equipment within the project area is moderate. A short-term increase in vehicle traffic is anticipated during project implementation and less so after drilling and completion activities are complete. This will result in a short-term increase in associated noise, which may cause temporary disturbance to wildlife species. More tolerant species may adapt to and even take advantage of close human contact. Increased vehicular traffic could cause direct mortality to these species or impede normal activities such as dispersal (Luckenbach 1975, Weinstein 1978). Species intolerant of human activities may use the project sites less when humans are regularly present in the area (Bushnel 1978, Lee and Griffith 1977). Those species observed at or near the project sites appear to have acclimated to ongoing activities, and are expected to do so after the proposed project is implemented.

Direct mortality or injury to sensitive animal populations could occur during construction, drilling, and completion activities if these activities are not confined to approved construction areas, access roads, and staging areas (assuming that sensitive animal populations are established in the construction zone during project implementation).

The project would not interfere with movements of wildlife species or with established native resident or migratory wildlife corridors. Native resident and/or migratory fish and known native wildlife nursery sites are not present within the project sites or areas.

## **PROPOSED AVOIDANCE AND MINIMIZATION MEASURES**

Implementation of proposed avoidance and minimization measures included in this report are recommended to reduce potential impacts to wildlife and plants. Avoidance and minimization measures presented below are what can be expected for the proposed project. These measures have been adapted here from the programmatic biological opinion issued by the USFWS (USFWS 2001) as well as other sources. It should be noted that the proposed project is not covered by the programmatic biological opinion, as the proposed project is located on land with privately owned surface and minerals. As such, these measures are only recommended:

1. As close to beginning of construction as possible, but not more than 14 days prior to construction, a qualified biologist shall conduct a final pre-construction survey of the construction zone to insure that no special-status wildlife species have recently occupied the proposed project sites. A qualified biologist shall be present immediately prior to construction activities that have potential to impact sensitive species (i.e., well site preparation, access road grading, etc.) to identify and protect potentially sensitive resources.
2. Proposed project sites boundaries shall be clearly delineated by stakes, flagging and /or rope or cord to minimize inadvertent degradation or loss of adjacent habitat during construction and drilling operations. Staff and/or its contractors shall post signs and/or place fence

around the sites to restrict access of vehicles and equipment unrelated to construction, drilling, and completion operations.

3. A qualified biologist monitor will be present during initial ground disturbance and site construction activities.
4. If San Joaquin kit foxes become established within the proposed project sites or buffer areas prior to project implementation, Naftex will implement the measures contained in the USFWS's "Standardized recommendations for protection of the San Joaquin kit fox prior to or during ground disturbance" (USFWS 2011). Naftex will implement the following measures:
  - If kit fox dens have become established within 200 feet of a construction area prior to project implementation that may be indirectly impacted by construction activities, exclusion zones shall be established prior to construction by a qualified biologist and dens shall not be disturbed in any way. Exclusion zone fencing should include untreated wood particle-board, silt fencing, orange construction fencing or other fencing as approved by the USFWS and CDFW. Exclusion zones shall be roughly circular with a radius of the following distances measured outward from entrance; potential den 50 feet, and known den 100 feet. Fencing must contain openings for kit fox ingress/egress and keeps humans and equipment out. If a natal/pupping den is discovered within a project site or within 200 feet of the project site, the USFWS and CDFW shall be immediately notified and under no circumstances should the den be disturbed or destroyed without prior authorization. If the preconstruction survey reveals an active natal pupping or new information, the project applicant should contact the USFWS and CDFW immediately to obtain the necessary take authorization/permit. If the take authorization/permit has already been issued, then the biologist may proceed with den destruction within the project boundary, except natal/pupping den which may not be destroyed while occupied. A take authorization/permit is required to destroy these dens even after they are vacated. Protective exclusion zones can be placed around all known and potential dens which occur outside the project footprint.
  - San Joaquin Kit fox exclusion zone barriers shall be maintained until all construction and drilling activities have been completed, and then removed. If specified exclusion zones cannot be observed for any reason, USFWS and CDFW shall be contacted for guidance prior to ground disturbing activities at or near the subject den. In the event that USFWS and CDFW concur that an occupied San Joaquin kit fox den would be unavoidably destroyed by a planned project action, procedures detailed in the USFWS Standardized Recommendations for protection of the San Joaquin Kit Fox (USFWS 2011) shall be implemented. Den excavation shall be undertaken only by a qualified biologist pursuant to USFWS and CDFW authorization and direction for excavation of kit fox dens.
  - In the event that a San Joaquin kit fox is injured or killed, the incident shall immediately be reported to the project biologist. The project biologist shall contact CDFW immediately in the case of a dead, injured or entrapped kit fox. The CDFW

contact for immediate assistance is State Dispatch at (916)445-0045. They will contact the local warden or the CDFW Central Region office at (559) 243-4014. The USFWS should be contacted at Endangered Species Division, (916) 414-6620 or (916) 414-6600. The USFWS and CDFW shall be notified in writing within three (3) working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, 2800 Cottage Way, Suite W2605, Sacramento, California 95825-1846. The CDFW contact is the Central Region office at (559) 243-4014. New sightings of kit fox shall be reported to the CNDDDB. A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed should also be provided to the USFWS as well.

- Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4 inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe should not be moved until the USFWS and CDFW has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.
- Limited destruction of kit fox dens may be allowed, if avoidance is not a reasonable alternative, provided the following procedures are observed. Destruction of any known or natal/pupping kit fox den requires take authorization/permit from the USFWS and CDFW. Destruction of the den should be accomplished by careful excavation until it is certain that no kit foxes are inside. The den should be fully excavated, filled with dirt and compacted to ensure that kit foxes cannot reenter or use the den during the construction period. If at any point during excavation, a kit fox is discovered inside the den, the excavation activity shall cease immediately and monitoring of the den as described above should be resumed. Destruction of the den may be completed when in the judgment of the biologist, the animal has escaped, without further disturbance, from the partially destroyed den. Natal or pupping dens which are occupied cannot be destroyed until the pups and adults have vacated and then only after consultation with the USFWS and CDFW. Known dens occurring within the footprint of the activity must be monitored for three (3) days with tracking medium or an infra-red beam camera to determine the current use. If no kit fox activity is observed during this period, the den should be destroyed immediately to preclude subsequent use. If kit fox activity is observed at the den during this period, the den should be monitored for at least five (5) consecutive days from the time of the observation to allow any resident animal to move to another den during its normal activity. Use of the den can be discouraged during this period by partially plugging its entrances(s) with soil in such a manner that any resident animal can escape easily. Only when the den is determined to be unoccupied may the den be excavated under

the direction of the biologist. If the animal is still present after five (5) or more consecutive days of plugging and monitoring, the den may have to be excavated when, in the judgment of a biologist, it is temporarily vacant, for example during the animal's normal foraging activities. The USFWS and CDFW encourage hand excavation, but realize that soil conditions may necessitate the use of excavating equipment. However, extreme caution must be exercised. For potential dens, if a take authorization/permit has been obtained, den destruction may proceed without monitoring, unless other restrictions were issued with the take authorization/permit. If no take authorization/permit has been issued, then potential dens should be monitored as if they were known dens. If any den was considered to be a potential den, but is later determined during monitoring or destruction to be currently, or previously used by kit fox (e.g., if kit fox sign is found inside), then all construction activities shall cease and the USFWS and CDFW shall be notified immediately.

5. The burrowing owl nesting season begins as early as February 1 and continues through August 31. If burrowing owls are located or become established within the proposed project sites or buffer areas at the time of the final pre-activity biological survey and are using burrows within the project sites or buffer areas, a qualified biologist will consult with CDFW; the following measures shall be implemented:
  - (a) Naftex will follow recommendations included in CDFW's *Staff Report on Burrowing Owl Mitigation* (CDFW 2012a) including avoidance of occupied burrows by implementation of a no-construction buffer zone of a minimum distance of 500 meters, unless a qualified biologist approved by CDFW verifies through non-invasive methods that either: 1) the birds have not begun egg laying and incubation; or 2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.
  - (b) On-site passive relocation of burrowing owls should be implemented if owls are using the burrows after August 31. Passive relocation is defined as encouraging owls to move from occupied burrows to alternate natural or artificial burrows that are beyond 150 feet from the impact zone and that are within or contiguous to a minimum of 6.5 acres of foraging habitat for each pair of relocated owls. Relocation of owls should only be implemented during the non-breeding season.
  - (c) Owls should be excluded from burrows in the immediate impact zone and within a 150 feet buffer zone by installing one-way doors in burrow entrances. One-way doors should be left in place 48 hours to insure owls have left the burrow before excavation. One alternate natural or artificial burrow should be provided for each burrow that will be excavated in the project impact zone. The project area should be monitored daily for one week to confirm owl use of alternate burrows before excavating burrows in the immediate impact zone.
  - (d) The project area shall be monitored daily for one week to confirm owl use of alternate burrows before excavating burrows in the immediate impact zone. Whenever possible, burrows shall be excavated using hand tools and refilled to prevent

reoccupation. Sections of flexible plastic pipe or burlap bags shall be inserted into burrow tunnels to prevent tunnel collapse while soil is excavated around that portion of a tunnel.

6. A project representative shall establish restrictions on construction-related traffic to approved construction areas, storage areas, staging and parking areas via signage. Off-road traffic outside of designated project areas shall be prohibited. Project-related traffic shall observe a 15 mph speed limit in all project areas except on County roads and State and federal highways to avoid impacts to special-status wildlife species.
7. Project activities during the drilling phase of the proposed project shall be scheduled to avoid evening hours, as feasible, to avoid special-status wildlife species that are active in the nighttime.
8. All vehicle operators shall check under vehicles and equipment before moving them if they have remained parked and shut off for 10 minutes or longer.
9. Hazardous materials, fuels, lubricants, and solvents that spill accidentally during project-related activities shall be cleaned up and removed from the project sites as soon as possible according to applicable federal, state and local regulations.
10. All equipment storage and parking during site development, drilling, and operation shall be confined to the proposed project sites or to previously disturbed off site areas that are not suitable habitat for listed species.
11. An Environmental Awareness Program shall be conducted to orient all employees involved in construction and drilling operations. The program shall consist of a brief presentation in which biologists knowledgeable of endangered species biology and legislative protection shall explain endangered species concerns. The program shall include a discussion of special-status plants and sensitive wildlife species. Species biology, habitat needs, status under the Endangered Species Act, and measures being taken for the protection of these species and their habitats as a part of the project shall be discussed.
12. If wildlife proof barricade fencing is not used at the proposed well sites, all excavated steep-walled holes or trenches in excess of three feet in depth shall be provided with one or more escape ramps constructed of earth fill to prevent entrapment of endangered species or other animals during the construction phase. Ramps shall be located at no greater than 1,000-foot intervals and at not less than 45-degree angles. Trenches shall be inspected for entrapped wildlife each morning prior to onset of construction activities and immediately prior to the end of each working day. Before such holes or trenches are filled they shall be inspected thoroughly for entrapped animals. Any animals discovered shall be allowed to escape voluntarily without harassment before construction activities resume, or removed from the trench or hole by a qualified biologist and allowed to escape unimpeded.
13. All construction pipes, culverts, or similar structures stored at a project site overnight having a diameter of four inches or greater shall be inspected thoroughly for wildlife species before

being buried, capped, or otherwise used or moved in any way. Pipes laid in trenches overnight shall be capped. If during construction a wildlife species is discovered inside a pipe, that section of pipe shall not be moved or, if necessary, moved only once to remove it from the path of construction activity, until the wildlife species has escaped.

14. All food-related trash items such as wrappers, cans, bottles or food scraps generated during construction or during subsequent stages of the project shall be disposed of only in closed containers and regularly removed from the proposed project sites. Food items may attract wildlife species onto a project site, consequently exposing such animals to increased risk of injury or mortality. No deliberate feeding of wildlife shall be allowed.
15. To prevent harassment or mortality of wildlife species via predation, or destruction of their dens or nests, no domestic pets shall be permitted on the proposed project sites.
16. Use of rodenticides and herbicides on the proposed project sites shall be permitted only as part of a USFWS and CDFW approved management plan unless such use is otherwise approved on a case-by-case basis. This is necessary to prevent primary or secondary poisoning of endangered species using adjacent habitats or depletion of prey upon which sensitive wildlife may depend.

## **CONCLUSION**

Special-status species and their habitat have been documented in the general vicinity of the proposed project sites. No sensitive plant or wildlife species were observed during the biological survey and assessment. If the proposed avoidance and minimization measures recommended in this report are implemented during the proposed project, impacts to sensitive wildlife and special-status plant species and/or their habitats will be less than significant.

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- USFWS (U.S. Fish and Wildlife Service). 1990. Endangered and threatened wildlife and plants. *Federal Register*. 50(35): 6184-6229.
- USFWS (U.S. Fish and Wildlife Service). 1995. Standardized recommendations for the protection of the San Joaquin kit fox.
- USFWS (U.S. Fish and Wildlife Service). 1996a. Endangered and threatened wildlife and plants; Review of plant and animal taxa that are candidates for listing as endangered or threatened species. *Federal Register*. 61(40): 7596-7613.
- USFWS (U.S. Fish and Wildlife Service). 1996b. Guidelines for conducting and reporting botanical inventories for federally listed, proposed and candidate plants. Unpublished Field Survey Protocol by U.S. Fish and Wildlife Service. 3 pp.
- USFWS (U.S. Fish and Wildlife Service). 1999. Standardized recommendations for the protection of the San Joaquin kit fox prior to or during ground disturbance. Unpublished protocol prepared by U.S. Fish and Wildlife Service, Sacramento, California. 7 pp.

- USFWS (U.S. Fish and Wildlife Service). 2000. Guidelines for conducting and reporting botanical inventories for federally listed, proposed and candidate plants. United States Fish and Wildlife Service. January 2000.
- USFWS (U.S. Fish and Wildlife Service). 2001. Revised Formal Consultation on the Oil and Gas Programmatic Biological Opinion in Kings and Kern Counties, California. Biological Opinion (1-1-01-F-0063) issued by U.S. Fish and Wildlife Service, Sacramento, California. 76 pp.
- USFWS (U.S. Fish and Wildlife Service). 2011. U.S. Fish and Wildlife Service Standardized Recommendations For Protection Of The Endangered San Joaquin Kit Fox Prior To Or During Ground Disturbance. Prepared by the Sacramento Fish And Wildlife Office, January 2011. 9 pp.
- USFWS (U.S. Fish and Wildlife Service). 2011. Standardized recommendations for the protection of the San Joaquin kit fox.
- USFWS (United States Fish and Wildlife Service). 2012. Website Address: [http://sacramento.fws.gov/es/spp\\_lists/QuickList.cfm](http://sacramento.fws.gov/es/spp_lists/QuickList.cfm).
- Weinstein, M. 1978. Impact of off-road vehicles on the avifauna of Afton Canyon, California. Report to Bureau of Land Management, California Desert Plan Program, Riverside California. Contract Number CA-0606-CT7-2734. 34 pp.
- Williams, D. F. 1980. Distribution and population status of the San Joaquin antelope squirrel and the giant kangaroo rat. California Department of Fish and Wildlife, Nongame Wildlife Investigation Report E-W-4, IV-10.1. 45 pp.
- Williams, D. F. 1986. Mammalian species of special concern in California. California Department of Fish and Wildlife, Wildlife Management Division, Administrative Report. 86-1. 112 pp.
- Williams, D.F. and K.S. Killburn. 1991. *Dipodomys ingens*. Mammal Species. 377:1-7.
- Williams, D. F., E. A. Cypher, P. A. Kelly, K. J. Miller, N. Norvell, S. E. Phillips, C. D. Johnson, and G. W. Colliver. 1998. Recovery plan for upland species of the San Joaquin Valley, California. U.S. Department of the Interior, Fish and Wildlife Service, Portland, Oregon. 319 pp.
- Zarn, M. 1974. Habitat management for unique or endangered species. Burrowing owl, *Speotyto cunicularia hypugaea*, Report Number 11. Technical Note, U. S. Department of Interior, Bureau of Land Management. Denver, Colorado. 25 pp.
- Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer and M. White. 1990. California's wildlife. Volume I - amphibians and reptiles. Volume II - birds, and Volume III - mammals. California Department of Fish and Wildlife. Sacramento, California.

**APPENDIX A**  
**REPRESENTATIVE PHOTOGRAPHS**



**Photograph 1**

Proposed project sites. View looking south from north side of proposed project sites.



**Photograph 2**

Proposed project sites. View looking north from south side of proposed project sites.

ATTACHMENT D

ARCHAEOLOGICAL SURVEY



June 18, 2012

Mr. Robert Booher  
Robert A. Booher Consulting  
3221 Quail Hollow Drive  
Fairfield, California 94533

Subject: Cultural Resources Assessment of the Naftex Operating Company Bloemer and Kirschenman Exploratory Oil and Gas Well Project, Kern County, California (BCR Consulting Project No. SYN1215)

Dear Mr. Booher:

Brunzell Cultural Resource Consulting (BCR Consulting) was retained by Robert A. Booher Consulting (RAB Consulting) to conduct a cultural resources records search, Native American consultation, and pedestrian field survey of the Naftex Operating Company Bloemer and Kirschenman Exploratory Oil and Gas Well Project (the proposed project) located in unincorporated Kern County, California. This letter report presents those results. The purpose of this study was to identify prehistoric or historic resources within the proposed project that may be impacted by project activities, pursuant to the California Environmental Quality Act (CEQA). The lead agency under CEQA for the project is the California Division of Oil, Gas, and Geothermal Resources (Division).

An archaeological record search and pedestrian field survey of the proposed project site did not reveal the presence of any cultural resources. Based on these results the proposed project is not anticipated to affect any historical resources. Therefore, no significant impact related to archaeological or historical resources is anticipated and no further investigations are recommended for the proposed project unless:

- The proposed project is changed to include areas not subject to this study;
- The proposed project is changed to include additional construction;
- Project activities reveal the presence of cultural materials.

### **Project Description and Location**

Naftex Operating Company (Naftex) proposes to construct six (6) oil and gas well sites, and drill one (1) exploratory oil and gas well from each pad. The proposed project is located 2.9 miles northeast of Edison in central Kern County, California (Figure 1). The proposed project is located in Section 26, Township 29 South, Range 29 East, Mount Diablo Baseline and Meridian (MDBM), in unincorporated Kern County, California. It is depicted on the U.S. Geological Survey (USGS) *Rio Bravo Ranch* (1995) and *Edison* (1992) 7.5-minute quadrangle (see Attachment A). The proposed oil and gas well sites are located at the following coordinates (WGS84):

<b>Well Name</b>	<b>Latitude</b>	<b>Longitude</b>
Bloemer 1	35.374949	-118.834100
Bloemer 2	35.376241	-118.8340937
Bloemer 3	35.375525	-118.8337385
Bloemer 4	35.3749549	-118.8330825
Kirschenman 1	35.3742796	-118.8335941
Kirschenman 2	35.3735667	-118.8340511

### **Archaeological Records Search**

BCR Consulting Principal Archaeologist David Brunzell completed the archaeological records search at the Southern San Joaquin Valley Information Center located at California State University Bakersfield. The records search included a review of all recorded historic and prehistoric archaeological sites, as well as recorded built environment resources within one mile of the proposed project site. The research also reviewed known cultural resources reports completed in the vicinity. In addition, BCR Consulting examined the California State Historic Property Data File (HPD), which includes the National Register of Historic Places (National Register), California Historical Landmarks (CHL), California Points of Historical Interest (CPHI), and various local historic registers. The records search revealed that five cultural resource studies were previously conducted, resulting in the recording of one historic-period cultural resource within one mile of the proposed project site. The following are the results of the records search:

<b>California USGS 7.5 Minute Quadrangle</b>	<b>Archaeological Sites</b>	<b>Built Environment Resources</b>	<b>Reports</b>
<i>Rio Bravo Ranch, CA (1995)</i>	CA-KER-4740	None	KE-641, 1066, 1726, 1806, 3559
<i>Edison, CA (1992)</i>	None	None	KE-641, 1726, 3559

### **Native American Consultation**

BCR Consulting requested a search of the Sacred Lands File maintained by the Native American Heritage Commission (NAHC) on June 6, 2012. The request included a brief project description and location map sent by email to David Singleton of the NAHC. Mr. Singleton performed the Sacred Lands File search, which has failed to reveal any record of Native American cultural resources within one-half mile of the proposed project. Mr. Singleton has also provided names of potentially interested tribes and individuals to BCR Consulting. BCR Consulting has communicated with those tribes and individuals via certified letters and emails. A record of all communications is provided in Attachment B of this report.

### **Pedestrian Field Survey**

BCR Consulting Principal Archaeologist David Brunzell conducted a reconnaissance pedestrian inventory of the proposed project site on June 11, 2012. During the survey, Mr. Brunzell walked 15-meter transects across the proposed project site. Rodent back dirt and other natural soil exposures were inspected for cultural remains. Vegetation within the proposed project site included seasonal grasses, Russian thistle, and mustard seed, exhibiting approximately 75 percent surface visibility. Soils consisted of fine silts containing intermittent granitic cobbles and gravels, and some quartz outcrops. A concentration of

modern construction debris and related disturbances were also noted within the project boundaries. No historic or prehistoric cultural resources were recorded during the survey.

### **Recommendations**

The records search and field survey did not identify any cultural resources within the proposed project site. Based on these results the proposed project is not anticipated to affect any archaeological or historical resources. Therefore, no significant impact related to archaeological or historical resources is anticipated and no further investigations are recommended for the proposed project unless:

- The proposed project is changed to include areas not subject to this study;
- The proposed project is changed to include additional construction;
- Project activities reveal the presence of cultural materials.

The current study attempted to determine whether archaeological deposits were present on the proposed project site. Although none were yielded during the records search and field survey, ground-disturbing activities have the potential to reveal buried deposits not observed on the surface. Prior to the initiation of ground-disturbing activities, field personnel should be alerted to the possibility of buried prehistoric or historic cultural deposits. In the event that field personnel encounter buried cultural materials, work in the immediate vicinity of the find should cease and a qualified archaeologist should be retained to assess the significance of the find. The qualified archaeologist shall have the authority to stop or divert construction excavation as necessary. If the qualified archaeologist finds that any cultural resources present meet National or California Register eligibility requirements, plans for the treatment, evaluation, and mitigation of impacts to the find will need to be developed.

If human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the NAHC, which notify a Most Likely Descendant. With the permission of the landowner or authorized representative, the MLD may inspect the discovery site. The MLD shall complete the inspection within 48 hours of notification.

Please contact me by phone at 909/525-7078 or e-mail at [david.brunzell@yahoo.com](mailto:david.brunzell@yahoo.com) with any questions or comments.

Sincerely,



David Brunzell, M.A./RPA  
Principal Investigator/Archaeologist

*Attachment A: Regional and Project Location Maps*

*Attachment B: Native American Heritage Commission Consultation Correspondence*

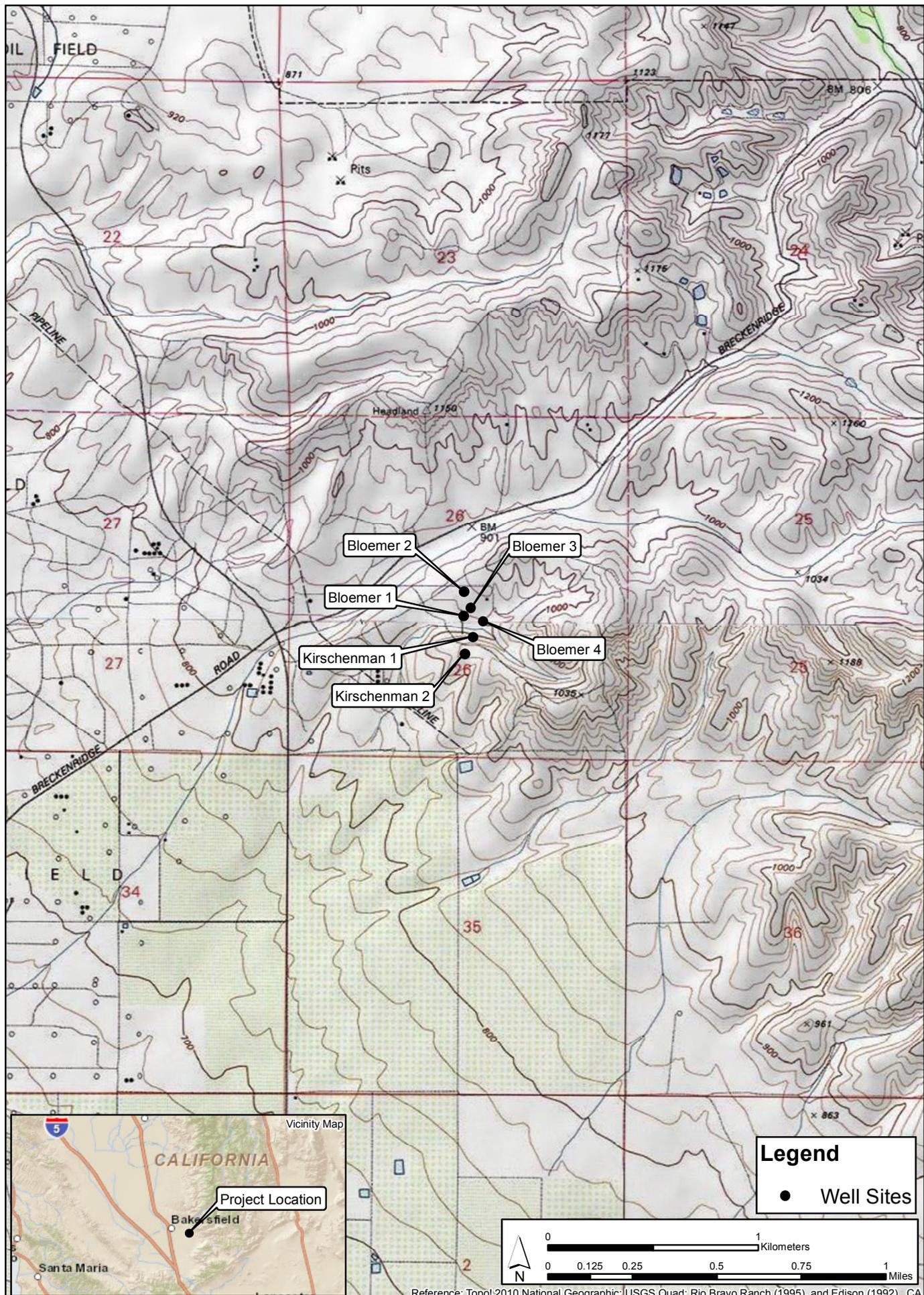
*Attachment C: Photographic Documentation*

Page 3

Naftex Operating Company

Bloemer and Kirschenman Exploratory Oil and Gas Well Project

**ATTACHMENT A:  
REGIONAL AND PROJECT LOCATION MAPS**



Reference: Topo! 2010 National Geographic; USGS Quad: Rio Bravo Ranch (1995), and Edison (1992), CA

**Figure 1**  
Project Location Site  
Bloemer and Kirschenman Exploratory Oil and Gas Project

Naftex Operating Company  
1900 Avenue of the Stars, Suite 2450  
Los Angeles, CA. 90067

**ATTACHMENT B:  
NATIVE AMERICAN HERITAGE COMMISSION CONSULTATION  
CORRESPONDENCE**

---

**Subject:** SLF/Tribe List Request for Naftex Project, Kern County

---

**From:** joseph brunzell (joebrunzell@gmail.com)

---

**To:** ds\_nahc@pacbell.net;

---

**Cc:** david.brunzell@yahoo.com;

---

**Date:** Wednesday, June 6, 2012 11:17 AM

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Hi Dave,

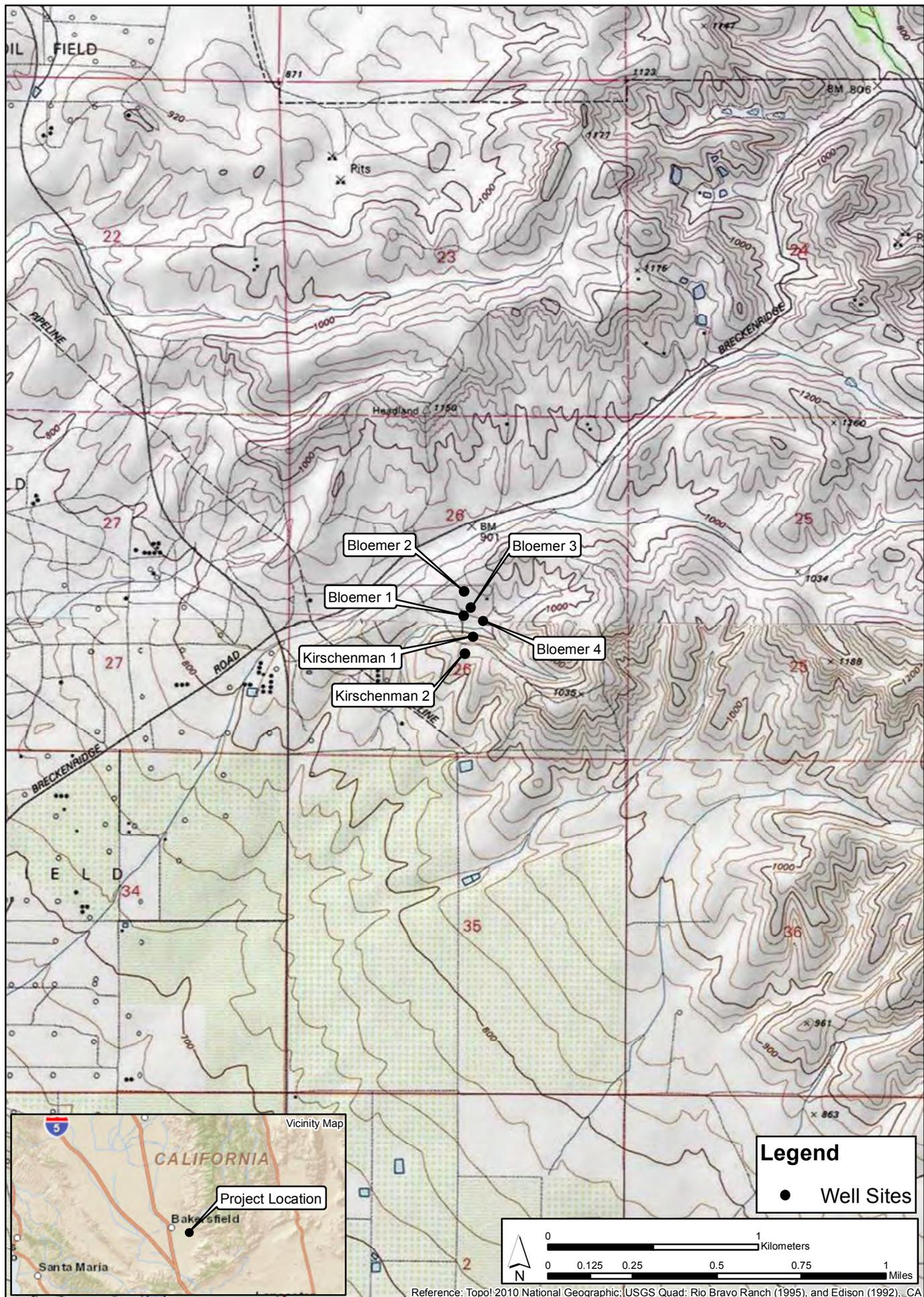
I'd like to request a Sacred Lands File search and list of potentially interested tribes and individuals for a cultural resource study of a proposed oil and gas exploration project in Kern County, California. The project is located in Section 26 of Township 29 South, Range 29 East, MDBM. It is depicted on the USGS Edison (1992), and Rio Bravo Ranch (1995) California 7.5 Minute Topographic Quadrangles (see attached project location map).

Please send the list to my email or the below fax number, and please get in touch with any questions. Can you also reference the Naftex Project in the subject line of your letter?

**Please note that our address has changed (see below).**

Joseph Brunzell  
Staff Archaeologist  
**BCR Consulting**  
1420 Guadalajara Place  
Claremont, Ca. 91711  
Phone: 909/210-7452  
Fax: 909/621-7678

[www.bcrconsulting.net](http://www.bcrconsulting.net)



Reference: Topo! 2010 National Geographic; USGS Quad: Rio Bravo Ranch (1995), and Edison (1992), CA

STATE OF CALIFORNIA

Edmund G. Brown, Jr., Governor

**NATIVE AMERICAN HERITAGE COMMISSION**

915 CAPITOL MALL, ROOM 364  
SACRAMENTO, CA 95814  
(916) 553-6251  
Fax (916) 857-5390  
Web Site [www.nahc.ca.gov](http://www.nahc.ca.gov)  
e-mail [de\\_nahc@pacbell.net](mailto:de_nahc@pacbell.net)



June 8 2012

Mr. Joseph Brunzell, Staff Archaeologist

**BCR Consulting**

1420 Guadalajara Place  
Claremont, CA 91711

Sent by FAX to: 909-621-7678

No. of Pages: 5

Re: Sacred Lands File Search and Native American Contacts list for the proposed "Oil and Gas Exploration Well Development Project," located northeast of the City of Bakersfield in the Rio Bravo area, Kern County, California

Dear Mr. Brunzell:

The Native American Heritage Commission (NAHC) conducted a Sacred Lands File searches of the 'area of potential effect,' (APE) based on the USGS coordinates provided and Native American cultural resources were not identified in the project area of potential effect (e.g. APE): you specified. . Also, please note, the NAHC Sacred Lands Inventory is not exhaustive and does not preclude the discovery of cultural resources during any project groundbreaking activity.

California Public Resources Code §§5097.94 (a) and 5097.96 authorize the NAHC to establish a Sacred Land Inventory to record Native American sacred sites and burial sites. These records are exempt from the provisions of the California Public Records Act pursuant to California Government Code §6254 (r). The purpose of this code is to protect such sites from vandalism, theft and destruction.

In the 1985 Appellate Court decision (170 Cal App 3rd 604), the court held that the NAHC has jurisdiction and special expertise, as a state agency, over affected Native American resources, impacted by proposed projects including archaeological, places of religious significance to Native Americans and burial sites

The California Environmental Quality Act (CEQA – CA Public Resources Code §§ 21000-21177, amendments effective 3/18/2010) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archaeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR) per the CEQA Guidelines defines a significant impact on the environment as 'a substantial, or potentially substantial, adverse change in any of physical conditions within an area affected by the proposed project, including ... objects of historic or aesthetic significance.' In order to comply with this provision, the lead agency is required to assess whether the project will have an adverse impact on these resources within the 'area of potential effect (APE), and if so, to mitigate that effect. CA Government Code §65040.12(e) defines "environmental justice" provisions and is applicable to the environmental review processes.

Early consultation with Native American tribes in your area is the best way to avoid unanticipated discoveries once a project is underway. Local Native Americans may have knowledge of the religious and cultural significance of the historic properties of the proposed project for the area (e.g. APE). Consultation with Native American communities is also a matter of environmental justice as defined by California Government Code §65040.12(e). We urge consultation with those tribes and interested Native Americans on the list that the NAHC has provided in order to see if your proposed project might impact Native American cultural resources. Lead agencies should consider avoidance as defined in §15370 of the CEQA Guidelines when significant cultural resources as defined by the CEQA Guidelines §15064.5 (b)(c)(f) may be affected by a proposed project. If so, Section 15382 of the CEQA Guidelines defines a significant impact on the environment as "substantial," and Section 2183.2 which requires documentation, data recovery of cultural resources.

The 1992 *Secretary of the Interiors Standards for the Treatment of Historic Properties* were revised so that they could be applied to all historic resource types included in the National Register of Historic Places and including cultural landscapes. Also, federal Executive Orders Nos. 11593 (preservation of cultural environment), 13175 (coordination & consultation) and 13007 (Sacred Sites) are helpful, supportive guides for Section 106 consultation. The aforementioned Secretary of the Interior's *Standards* include recommendations for all 'lead agencies' to consider the historic context of proposed projects and to "research" the cultural landscape that might include the 'area of potential effect.'

Partnering with local tribes and interested Native American consulting parties, on the NAHC list, should be conducted in compliance with the requirements of federal NEPA (42 U.S.C. 4321-43351) and Section 106 4(f), Section 110 and (k) of the federal NHPA (16 U.S.C. 470 *et seq.*), Section 4(f) of the Department of Transportation Act of 1966 (23 CFR 774); 36 CFR Part 800.3 (f) (2) & .5, the President's Council on Environmental Quality (CSQ, 42 U.S.C. 4371 *et seq.* and NAGPRA (25 U.S.C. 3001-3013) as appropriate. The 1992 *Secretary of the Interiors Standards for the Treatment of Historic Properties* were revised so that they could be applied to all historic resource types included in the National Register of Historic Places and including cultural landscapes. Also, federal Executive Orders Nos. 11593 (preservation of cultural environment), 13175 (coordination & consultation) and 13007 (Sacred Sites) are helpful, supportive guides for Section 106 consultation. The NAHC remains concerned about the limitations and methods employed for NHPA Section 106 Consultation.

Also, California Public Resources Code Section 5097.98, California Government Code §27491 and Health & Safety Code Section 7050.5 provide for provisions for accidentally discovered archeological resources during construction and mandate the processes to be followed in the event of an accidental discovery of any human remains in a project location other than a 'dedicated cemetery', another important reason to have Native American Monitors on board with the project.

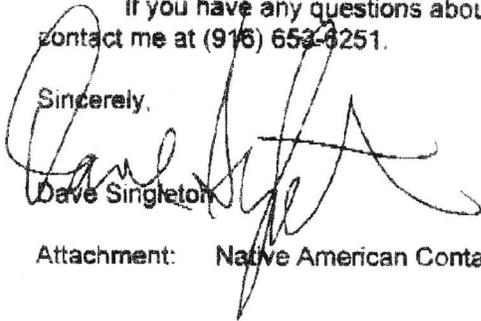
To be effective, consultation on specific projects must be the result of an ongoing relationship between Native American tribes and lead agencies, project proponents and their contractors, in the opinion of the NAHC. An excellent way to reinforce the relationship between a project and local tribes is to employ Native American Monitors in all phases of proposed projects including the planning phases.

Confidentiality of "historic properties of religious and cultural significance" may also be protected under Section 304 of the NHPA or at the Secretary of the Interior discretion if not eligible for listing on the National Register of Historic Places. The Secretary may also be advised by the federal Indian Religious Freedom Act (cf. 42 U.S.C., 1996) in issuing a decision

on whether or not to disclose items of religious and/or cultural significance identified in or near the APE and possibility threatened by proposed project activity.

If you have any questions about this response to your request, please do not hesitate to contact me at (916) 652-6251.

Sincerely,

A handwritten signature in black ink, appearing to read "Dave Singleton", written over the word "Sincerely,".

Dave Singleton

Attachment: Native American Contact List

**Native American Contacts**

Kern County

June 8, 2012

Santa Rosa Rancheria  
 Rueben Barrios, Chairperson  
 P.O. Box 8 Tache  
 Lemoore , CA 93245 Tachi  
 (559) 924-1278 Yokut  
 (559) 924-3583 Fax

Tejon Indian Tribe  
 Katherine Montes- Morgan, Chairperson  
 2234 4th Street Yowlumne  
 Wasco , CA 93280 Kitanemuk  
 kmorgan@bak.rr.com Kawaiisu  
 661-758-2303

Tule River Indian Tribe  
 Neil Peyron, Chairperson  
 P.O. Box 589 Yokuts  
 Porterville , CA 93258  
 chairman@tulerivertribe-nsn.  
 (559) 781-4271  
 (559) 781-4610 FAX

Kawaiisu Tribe of Tejon Reservation  
 David Laughinghorse Robinson  
 PO Box 1547 Kawaiisu  
 Kernville , CA 93238  
 (661) 664-3098 - work  
 (661) 664-7747 - home  
 horse.robinson@gmail.com

Ron Wermuth  
 P.O. Box 168 Tubatulabal  
 Kernville , CA 93238 Kawaiisu  
 warmoose@earthlink.net Koso  
 (760) 376-4240 - Home Yokuts  
 (916) 717-1176 - Cell

Kern Valley Indian Council  
 Robert Robinson, Co-Chairperson  
 P.O. Box 401 Tubatulabal  
 Weldon , CA 93283 Kawaiisu  
 brobinson@iwvisp.com Koso  
 (760) 378-4575 (Home) Yokuts  
 (760) 549-2131 (Work)

Kitanemuk & Yowlumne Tejon Indians  
 Delia Dominguez, Chairperson  
 115 Radio Street Yowlumne  
 Bakersfield , CA 93305 Kitanemuk  
 deedominguez@juno.com  
 (626) 339-6785

Tubatulabals of Kern Valley  
 Dr. Donna Begay, Tribal Chairwoman  
 P.O. Box 226 Tubatulabal  
 Lake Isabella, CA 93240  
 drbegay@aol.com  
 (760) 379-4590  
 (760) 379-4592 FAX

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is applicable for contacting local Native Americans with regard to cultural resources for the proposed Oil and Gas Well Exploration Project; located in the Rio Bravo area; Kern County, California for which a Sacred Lands File search and Native American Contacts list were requested.

**Native American Contacts**  
Kern County  
June 8, 2012

Santa Rosa Tachi Rancheria  
Lalo Franco, Cultural Coordinator  
P.O. Box 8                      Tachi  
Lemoore     , CA 93245      Tache  
(559) 924-1278 - Ext. 5      Yokut  
(559) 924-3583 - FAX

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is applicable for contacting local Native Americans with regard to cultural resources for the proposed Oil and Gas Well Exploration Project; located in the Rio Bravo area; Kern County, California for which a Sacred Lands File search and Native American Contacts list were requested.

**Native American Consultation Summary for the Naftex Operating Company Proposed 20 Acre Oil and Gas Exploration \*  
Project, Kern County, California.** Native American Heritage Commission replied to BCR Consulting Request on June 8, 2012. Results of Sacred Land File Search did not indicate presence of Native American cultural resources, and recommended that the below groups/individuals be contacted.

<b>Groups Contacted</b>	<b>Letter/Email Date</b>	<b>Response from Tribes</b>
Rueben Barrios, Chairperson Santa Rosa Rancheria	Letter: 6/8/12 Email: N/A	None
Katherine Montes-Morgan, Chairperson Tejon Indian Tribe	Letter: 6/8/12 Email: 6/8/12	6/20/12: Ms. Montes Morgan responded by email that the Tejon Indian Tribe has no knowledge of cultural resources t this site, but did request copies of the NAHC report, and the results of the archaeological records search. She also wishes to be notified of any finds (email attached).
Neil Peyron, Chairperson Tule River Indian Tribe	Letter: 6/8/12 Email: 6/8/12	None
David Laughinghorse Robinson Kawaiisu Tribe of Tejon Reservation	Letter: 6/8/12 Email: 6/8/12	None
Ron Wermuth	Letter: 6/8/12 Email: 6/8/12	None
Robert Robinson, Co-Chairperson Kern Valley Indian Council	Letter: 6/8/12 Email: 6/8/12	None
Delia Dominguez, Chairperson Kitanemuk & Yowlumne Tejon Indians	Letter: 6/8/12 Email: 6/8/12	None
Dr. Donna Begay, Tribal Chairperson Tubatulabals of Kern Valley	Letter: 6/8/12 Email: 6/8/12	None
Lalo Franco, Cultural Coordinator Santa Rosa Tachi Rancheria	Letter: 6/8/12 Email: N/A	None

\*Original 20 acres encompassed six well sites depicted in project location map.



June 8, 2012

Rueben Barrios  
Chairperson  
Santa Rosa Rancheria  
P.O. Box 8  
Lemoore, California 93245

**Subject: Tribal Consultation for the Naftex Operating Company Proposed 20 Acre Oil and Gas Exploration Project, Kern County, California.**

Dear Rueben:

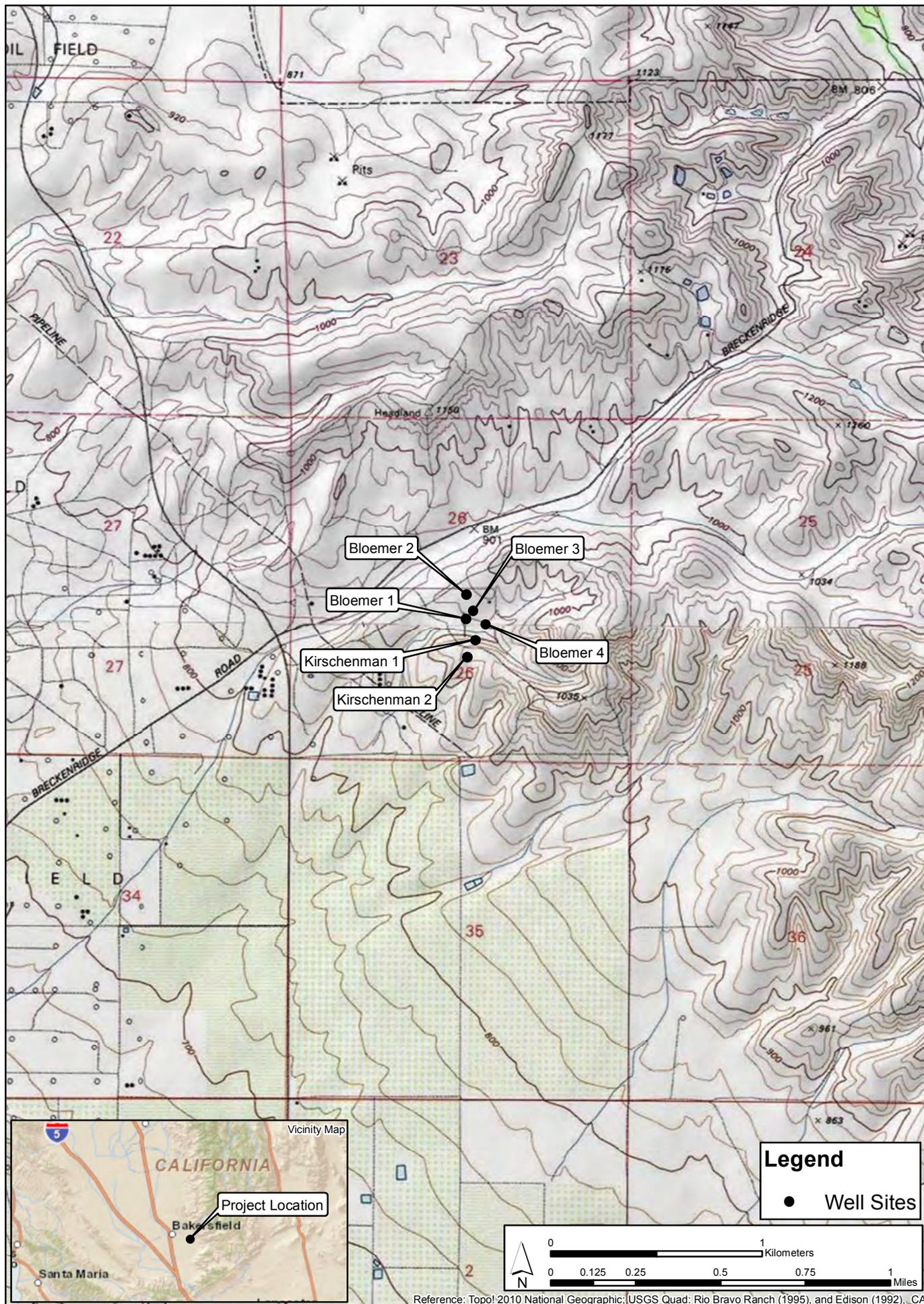
This is an invitation to consult on a proposed development project at locations with which you have tribal cultural affiliation. The purpose of the consultation is to ensure the protection of Native American cultural resources on which the proposed undertaking may have an impact. In the tribal consultation process, early consultation is encouraged in order to provide for full and reasonable public input from Native American Groups and Individuals, as consulting parties, on potential effect of the development project and to avoid costly delays. Further, we understand that much of the content of the consultation will be confidential and will include, but not be limited to, the relationship of proposed project details to Native American Cultural Historic Properties, such as burial sites, known or unknown, architectural features and artifacts, ceremonial sites, sacred shrines, and cultural landscapes. The proposed oil and gas exploration project is located within Section 26 of Township 29 South, Range 29 East, Mt. Diablo Baseline and Meridian, and is depicted on the *Edison* (1992), and *Rio Bravo Ranch* (1995), *California USGS 7.5 Minute Topographic Quadrangle* (see attached).

If you know of any cultural resources in the vicinity that may be of religious and/or cultural significance to your community or if you would like more information, please contact me at 909-525-7078 or david.brunzell@yahoo.com. Correspondence can also be sent to BCR Consulting, Attn: David Brunzell, 1420 Guadalajara Place, Claremont, California 91711. I request a response by June 22, 2012. If you require more time, please let me know. Thank you for your involvement in this process.

Sincerely,

**BCR Consulting**

David Brunzell, M.A./RPA  
Principal Investigator/Archaeologist  
*Attachment:* USGS Map



Reference: Topo! 2010 National Geographic; USGS Quad: Rio Bravo Ranch (1995), and Edison (1992), CA

**Figure 1**  
 Project Location Site  
 Bloemer and Kirschenman Exploratory Oil and Gas Project

Naftex Operating Company  
 1900 Avenue of the Stars, Suite 2450  
 Los Angeles, CA. 90067



June 8, 2012

Katherine Montes-Morgan  
Chairperson  
Tejon Indian Tribe  
2234 4<sup>th</sup> Street  
Wasco, California 93280

**Subject: Tribal Consultation for the Naftex Operating Company Proposed 20 Acre Oil and Gas Exploration Project, Kern County, California.**

Dear Katherine:

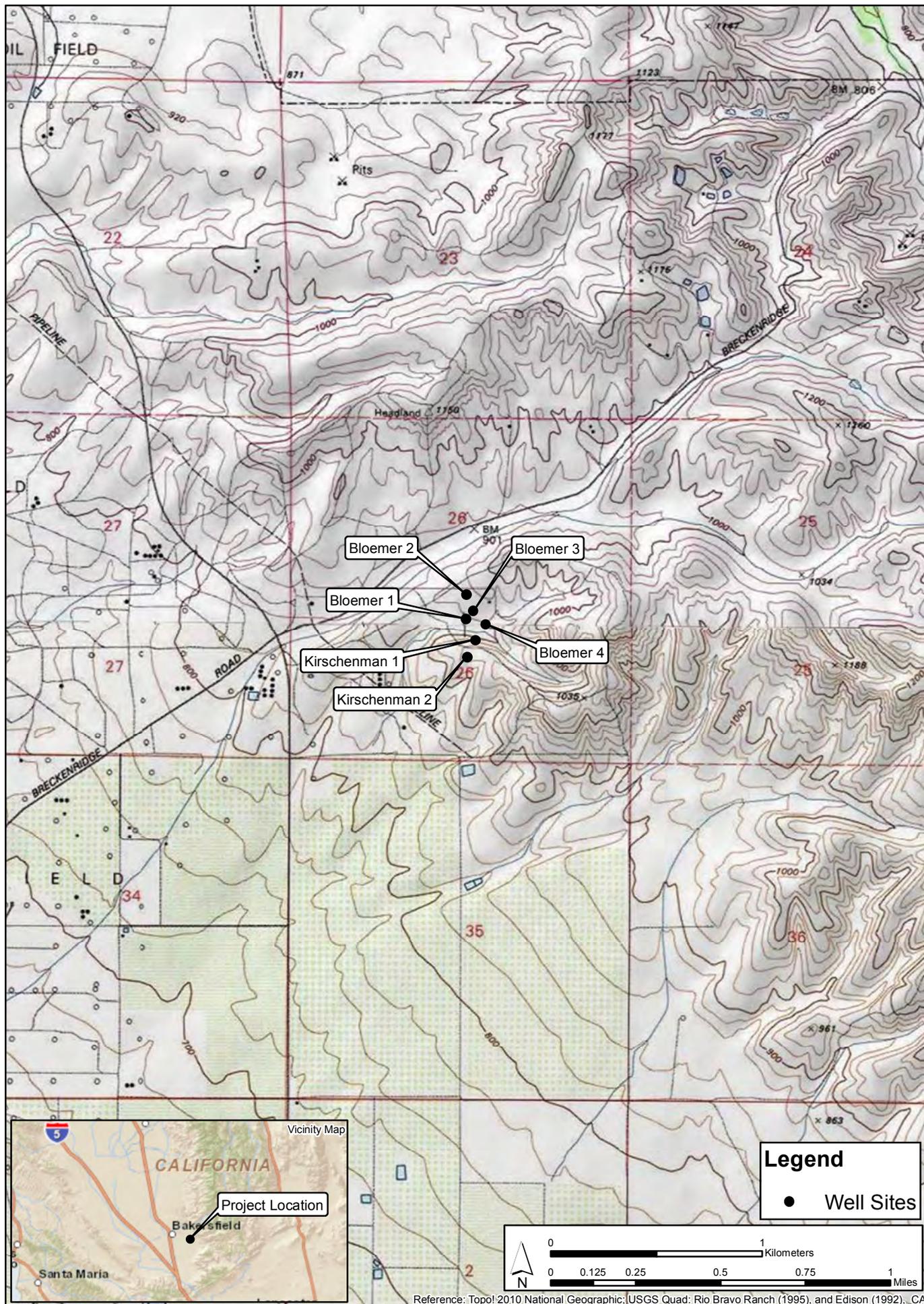
This is an invitation to consult on a proposed development project at locations with which you have tribal cultural affiliation. The purpose of the consultation is to ensure the protection of Native American cultural resources on which the proposed undertaking may have an impact. In the tribal consultation process, early consultation is encouraged in order to provide for full and reasonable public input from Native American Groups and Individuals, as consulting parties, on potential effect of the development project and to avoid costly delays. Further, we understand that much of the content of the consultation will be confidential and will include, but not be limited to, the relationship of proposed project details to Native American Cultural Historic Properties, such as burial sites, known or unknown, architectural features and artifacts, ceremonial sites, sacred shrines, and cultural landscapes. The proposed oil and gas exploration project is located within Section 26 of Township 29 South, Range 29 East, Mt. Diablo Baseline and Meridian, and is depicted on the *Edison* (1992), and *Rio Bravo Ranch* (1995), *California* USGS 7.5 Minute Topographic Quadrangle (see attached).

If you know of any cultural resources in the vicinity that may be of religious and/or cultural significance to your community or if you would like more information, please contact me at 909-525-7078 or david.brunzell@yahoo.com. Correspondence can also be sent to BCR Consulting, Attn: David Brunzell, 1420 Guadalajara Place, Claremont, California 91711. I request a response by June 22, 2012. If you require more time, please let me know. Thank you for your involvement in this process.

Sincerely,

**BCR Consulting**

David Brunzell, M.A./RPA  
Principal Investigator/Archaeologist  
*Attachment:* USGS Map



Reference: Topo! 2010 National Geographic; USGS Quad: Rio Bravo Ranch (1995), and Edison (1992), CA

**Figure 1**  
Project Location Site  
Bloemer and Kirschenman Exploratory Oil and Gas Project

Naftex Operating Company  
1900 Avenue of the Stars, Suite 2450  
Los Angeles, CA. 90067

---

**Subject:** Tribal Consultation for the Naftex Operating Company Proposed 20 Acre Oil and Gas Exploration Project, Kern County, California

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**From:** Julie Gonzalez (office@tejontribe.net)

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**To:** david.brunzell@yahoo.com;

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**Cc:** kmorgan@bak.rr.com;

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**Date:** Wednesday, June 20, 2012 10:17 AM

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Dear David Brunzell,

Thank you, for the letter dated June 8, 2012 and the opportunity to comment on this project. Tejon Indian Tribe has no conflict with this project nor do we know of any cultural resources that might be impacted at this site. However, I am asking you to please forward me copies of both the Native American Heritage Commission and the South San Joaquin Information Center record searches for this site. I would also like for you notify me immediately if any site(s) and/or artifacts are discovered during your project in the area.

Sincerely,

Kathryn Montes Morgan

Tribal Chair

Tejon Indian Tribe



June 8, 2012

Neil Peyron  
Chairperson  
Tule River Indian Tribe  
P.O. Box 589  
Porterville, California 93258

**Subject: Tribal Consultation for the Naftex Operating Company Proposed 20 Acre Oil and Gas Exploration Project, Kern County, California.**

Dear Neil:

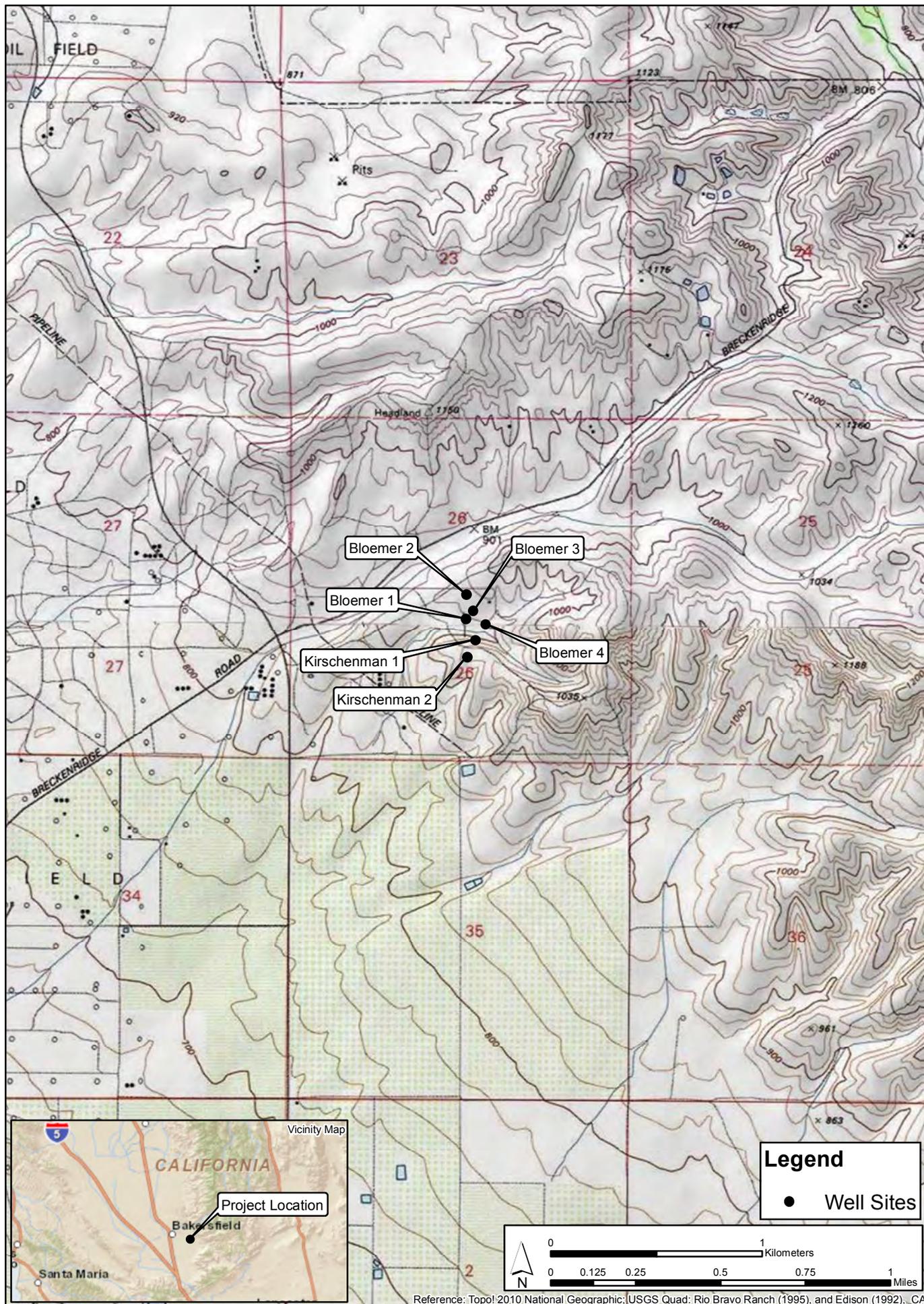
This is an invitation to consult on a proposed development project at locations with which you have tribal cultural affiliation. The purpose of the consultation is to ensure the protection of Native American cultural resources on which the proposed undertaking may have an impact. In the tribal consultation process, early consultation is encouraged in order to provide for full and reasonable public input from Native American Groups and Individuals, as consulting parties, on potential effect of the development project and to avoid costly delays. Further, we understand that much of the content of the consultation will be confidential and will include, but not be limited to, the relationship of proposed project details to Native American Cultural Historic Properties, such as burial sites, known or unknown, architectural features and artifacts, ceremonial sites, sacred shrines, and cultural landscapes. The proposed oil and gas exploration project is located within Section 26 of Township 29 South, Range 29 East, Mt. Diablo Baseline and Meridian, and is depicted on the *Edison* (1992), and *Rio Bravo Ranch* (1995), *California USGS 7.5 Minute Topographic Quadrangle* (see attached).

If you know of any cultural resources in the vicinity that may be of religious and/or cultural significance to your community or if you would like more information, please contact me at 909-525-7078 or david.brunzell@yahoo.com. Correspondence can also be sent to BCR Consulting, Attn: David Brunzell, 1420 Guadalajara Place, Claremont, California 91711. I request a response by June 22, 2012. If you require more time, please let me know. Thank you for your involvement in this process.

Sincerely,

**BCR Consulting**

David Brunzell, M.A./RPA  
Principal Investigator/Archaeologist  
*Attachment:* USGS Map



Reference: Topo! 2010 National Geographic; USGS Quad: Rio Bravo Ranch (1995), and Edison (1992), CA

**Figure 1**  
 Project Location Site  
 Bloemer and Kirschenman Exploratory Oil and Gas Project

Naftex Operating Company  
 1900 Avenue of the Stars, Suite 2450  
 Los Angeles, CA. 90067



June 8, 2012

David Laughinghorse Robinson  
Kawaiisu Tribe of Tejon Resrvation  
P.O. Box 1547  
Kernville, California 93238

**Subject: Tribal Consultation for the Naftex Operating Company Proposed 20 Acre Oil and Gas Exploration Project, Kern County, California.**

Dear David:

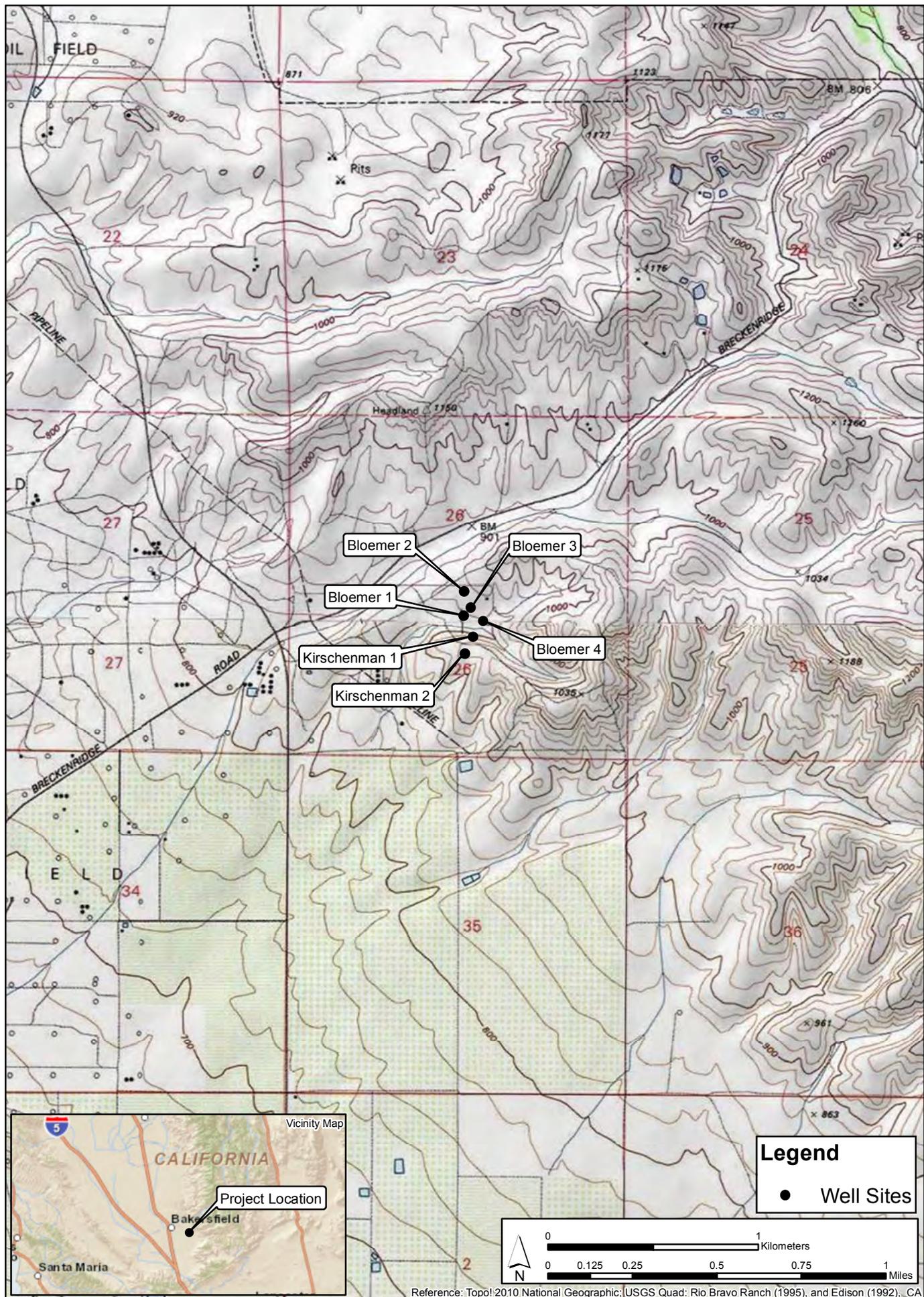
This is an invitation to consult on a proposed development project at locations with which you have tribal cultural affiliation. The purpose of the consultation is to ensure the protection of Native American cultural resources on which the proposed undertaking may have an impact. In the tribal consultation process, early consultation is encouraged in order to provide for full and reasonable public input from Native American Groups and Individuals, as consulting parties, on potential effect of the development project and to avoid costly delays. Further, we understand that much of the content of the consultation will be confidential and will include, but not be limited to, the relationship of proposed project details to Native American Cultural Historic Properties, such as burial sites, known or unknown, architectural features and artifacts, ceremonial sites, sacred shrines, and cultural landscapes. The proposed oil and gas exploration project is located within Section 26 of Township 29 South, Range 29 East, Mt. Diablo Baseline and Meridian, and is depicted on the *Edison* (1992), and *Rio Bravo Ranch* (1995), *California USGS 7.5 Minute Topographic Quadrangle* (see attached).

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Sincerely,

**BCR Consulting**

David Brunzell, M.A./RPA  
Principal Investigator/Archaeologist  
*Attachment:* USGS Map



Reference: Topo! 2010 National Geographic; USGS Quad: Rio Bravo Ranch (1995), and Edison (1992), CA

**Figure 1**  
Project Location Site  
Bloemer and Kirschenman Exploratory Oil and Gas Project

Naftex Operating Company  
1900 Avenue of the Stars, Suite 2450  
Los Angeles, CA. 90067



June 8, 2012

Ron Wermuth  
P.O. Box 168  
Kernville, California 93238

**Subject: Tribal Consultation for the Naftex Operating Company Proposed 20 Acre Oil and Gas Exploration Project, Kern County, California.**

Dear Ron:

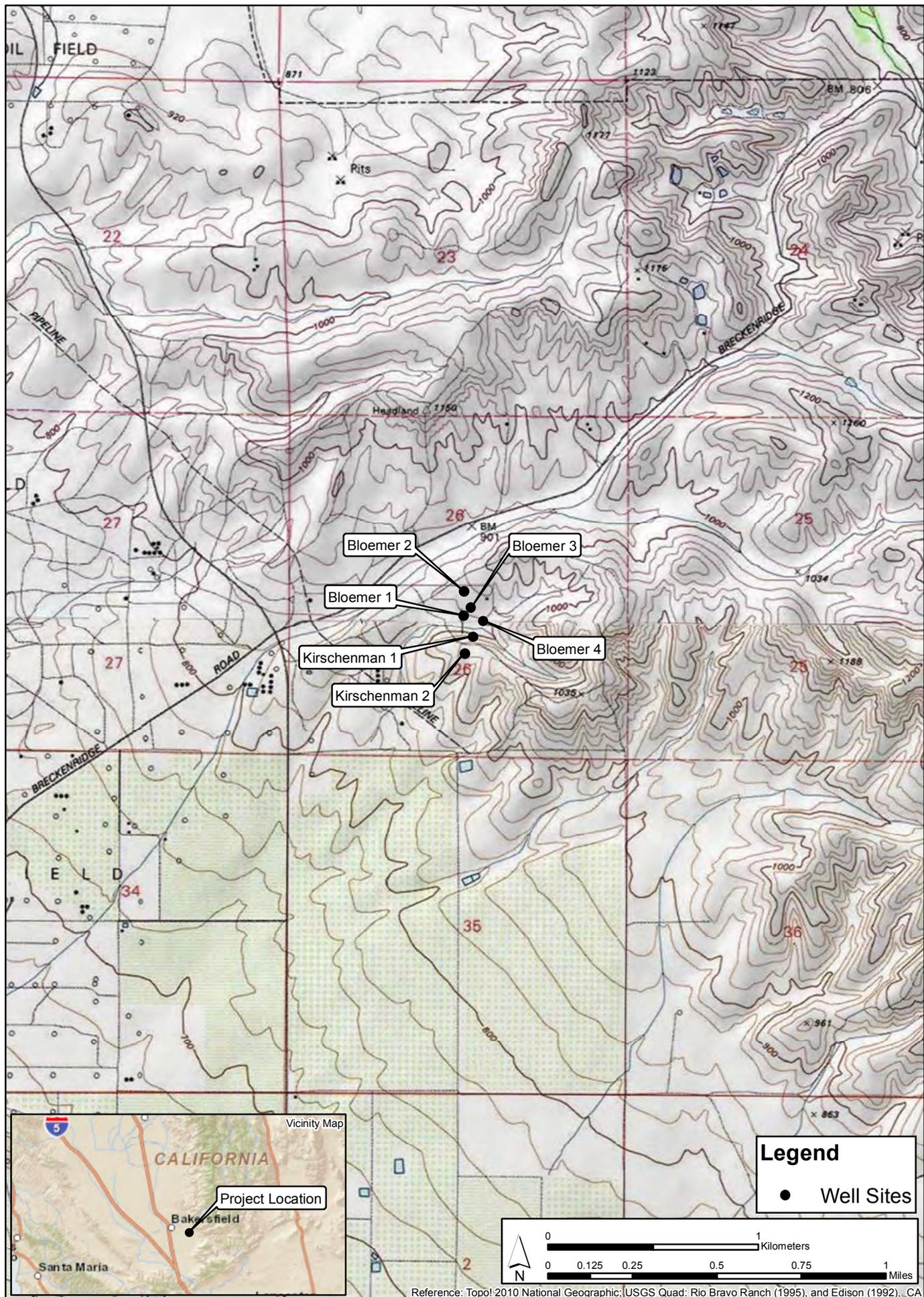
This is an invitation to consult on a proposed development project at locations with which you have tribal cultural affiliation. The purpose of the consultation is to ensure the protection of Native American cultural resources on which the proposed undertaking may have an impact. In the tribal consultation process, early consultation is encouraged in order to provide for full and reasonable public input from Native American Groups and Individuals, as consulting parties, on potential effect of the development project and to avoid costly delays. Further, we understand that much of the content of the consultation will be confidential and will include, but not be limited to, the relationship of proposed project details to Native American Cultural Historic Properties, such as burial sites, known or unknown, architectural features and artifacts, ceremonial sites, sacred shrines, and cultural landscapes. The proposed oil and gas exploration project is located within Section 26 of Township 29 South, Range 29 East, Mt. Diablo Baseline and Meridian, and is depicted on the *Edison* (1992), and *Rio Bravo Ranch* (1995), *California USGS 7.5 Minute Topographic Quadrangle* (see attached).

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Sincerely,

**BCR Consulting**

David Brunzell, M.A./RPA  
Principal Investigator/Archaeologist  
*Attachment:* USGS Map



Reference: Topo! 2010 National Geographic; USGS Quad: Rio Bravo Ranch (1995), and Edison (1992), CA

**Figure 1**  
 Project Location Site  
 Bloemer and Kirschenman Exploratory Oil and Gas Project

Naftex Operating Company  
 1900 Avenue of the Stars, Suite 2450  
 Los Angeles, CA. 90067



June 8, 2012

Robert Robinson  
Co-Chairperson  
Kern Valley Indian Council  
P.O. Box 401  
Weldon, California 93283

**Subject: Tribal Consultation for the Naftex Operating Company Proposed 20 Acre Oil and Gas Exploration Project, Kern County, California.**

Dear Robert:

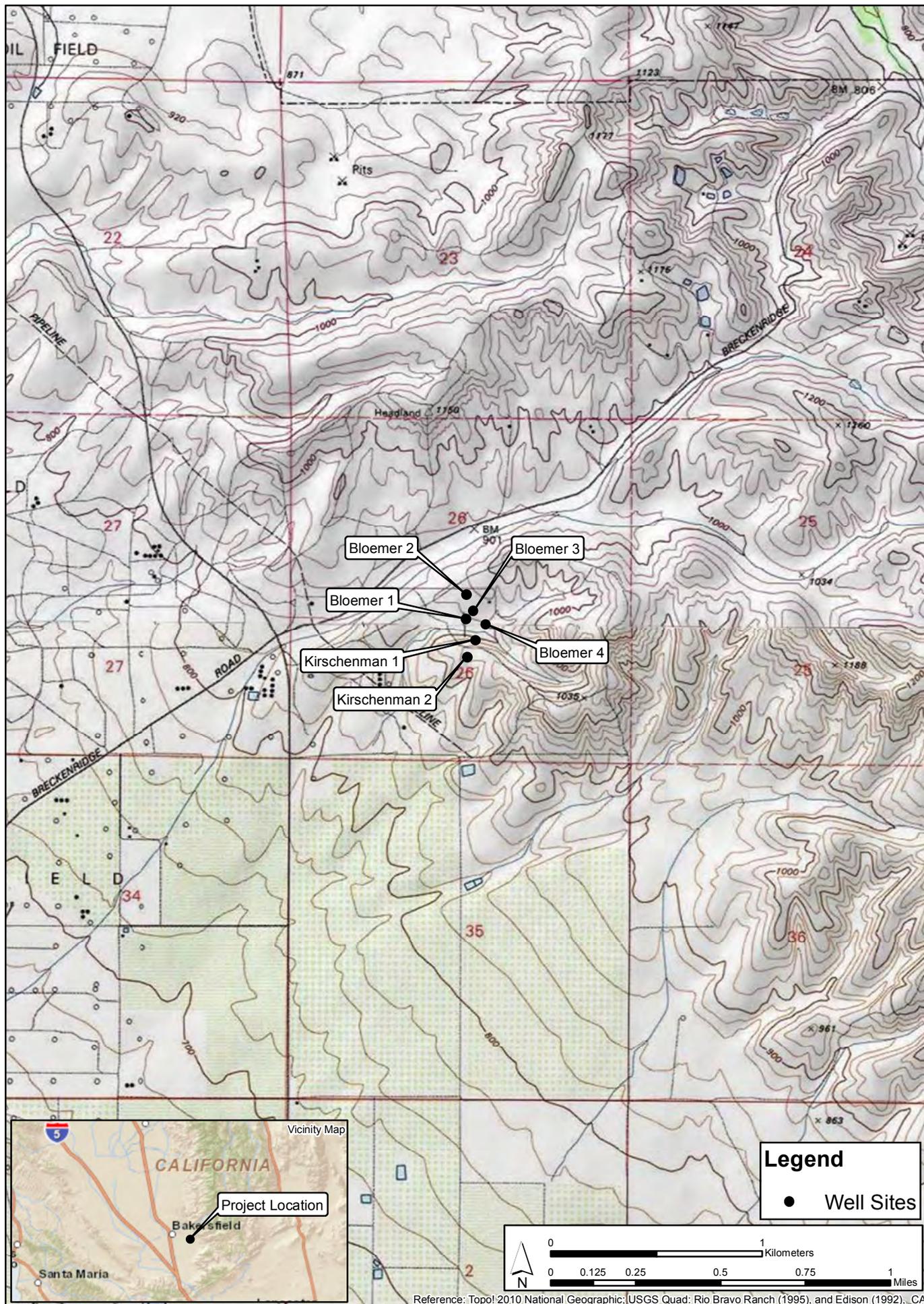
This is an invitation to consult on a proposed development project at locations with which you have tribal cultural affiliation. The purpose of the consultation is to ensure the protection of Native American cultural resources on which the proposed undertaking may have an impact. In the tribal consultation process, early consultation is encouraged in order to provide for full and reasonable public input from Native American Groups and Individuals, as consulting parties, on potential effect of the development project and to avoid costly delays. Further, we understand that much of the content of the consultation will be confidential and will include, but not be limited to, the relationship of proposed project details to Native American Cultural Historic Properties, such as burial sites, known or unknown, architectural features and artifacts, ceremonial sites, sacred shrines, and cultural landscapes. The proposed oil and gas exploration project is located within Section 26 of Township 29 South, Range 29 East, Mt. Diablo Baseline and Meridian, and is depicted on the *Edison* (1992), and *Rio Bravo Ranch* (1995), *California* USGS 7.5 Minute Topographic Quadrangle (see attached).

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Sincerely,

**BCR Consulting**

David Brunzell, M.A./RPA  
Principal Investigator/Archaeologist  
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**Figure 1**  
Project Location Site  
Bloemer and Kirschenman Exploratory Oil and Gas Project

Naftex Operating Company  
1900 Avenue of the Stars, Suite 2450  
Los Angeles, CA. 90067



June 8, 2012

Delia Dominguez  
Chairperson  
Kitanemuk & Yowlumne Tejon Indians  
115 Radio Street  
Bakersfield, California 93305

**Subject: Tribal Consultation for the Naftex Operating Company Proposed 20 Acre Oil and Gas Exploration Project, Kern County, California.**

Dear Delia:

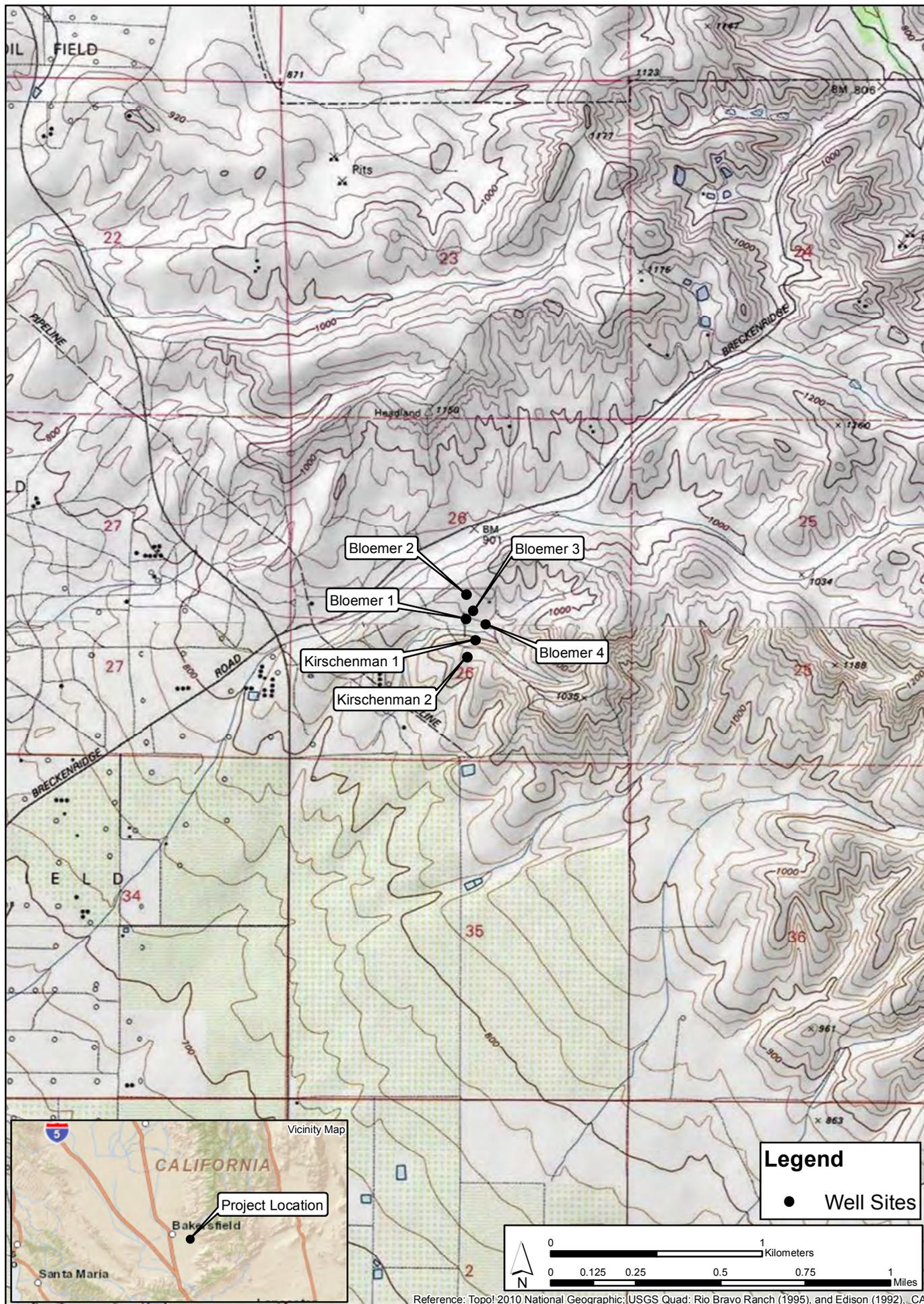
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**BCR Consulting**

David Brunzell, M.A./RPA  
Principal Investigator/Archaeologist  
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**Figure 1**  
Project Location Site  
Bloemer and Kirschenman Exploratory Oil and Gas Project

Naftex Operating Company  
1900 Avenue of the Stars, Suite 2450  
Los Angeles, CA. 90067



June 8, 2012

Dr. Donna Begay  
Tribal Chairwoman  
Tubatulabals of Kern Valley  
P.O. Box 226  
Lake Isabella, California 93240

**Subject: Tribal Consultation for the Naftex Operating Company Proposed 20 Acre Oil and Gas Exploration Project, Kern County, California.**

Dear Donna:

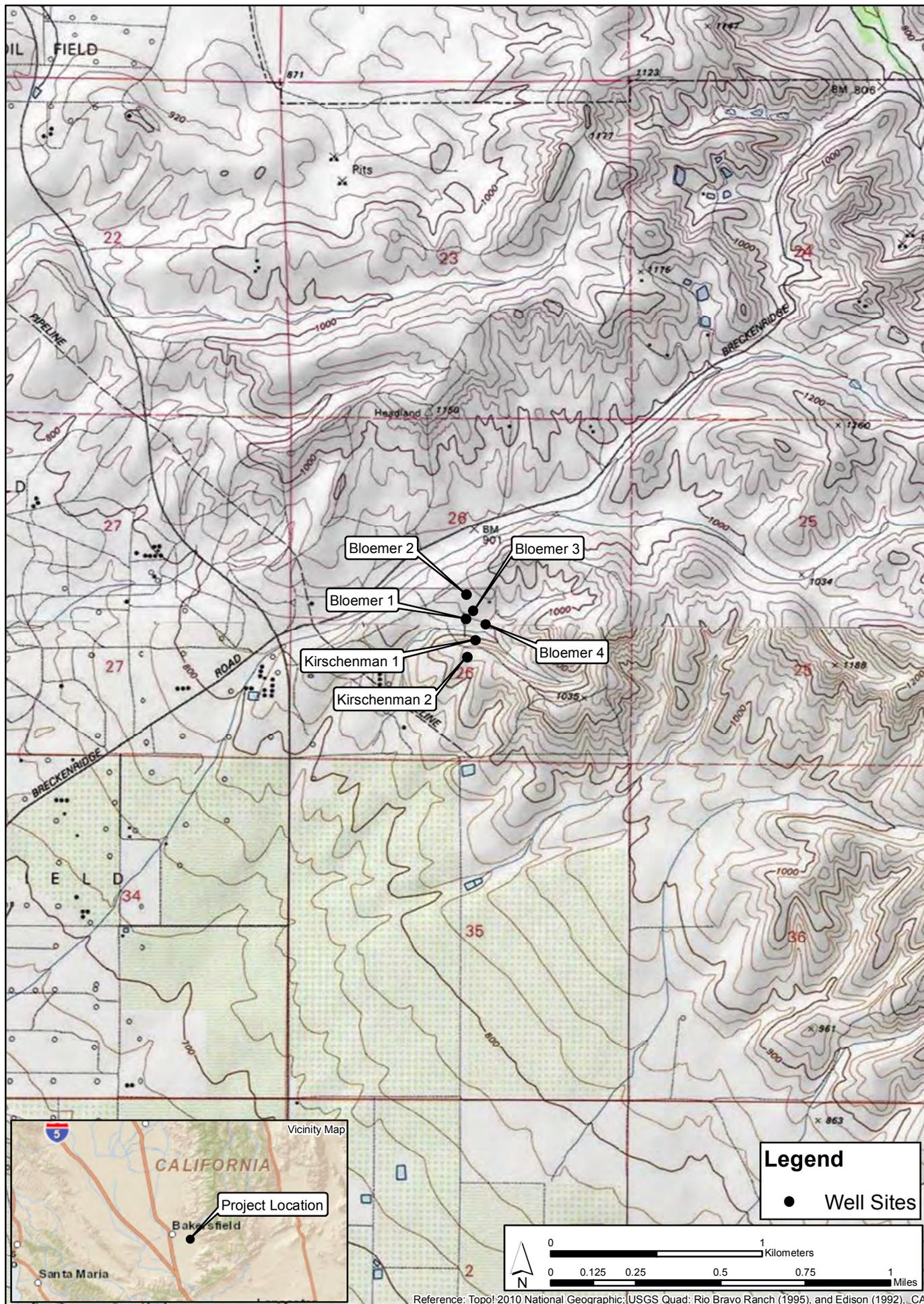
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If you know of any cultural resources in the vicinity that may be of religious and/or cultural significance to your community or if you would like more information, please contact me at 909-525-7078 or david.brunzell@yahoo.com. Correspondence can also be sent to BCR Consulting, Attn: David Brunzell, 1420 Guadalajara Place, Claremont, California 91711. I request a response by June 22, 2012. If you require more time, please let me know. Thank you for your involvement in this process.

Sincerely,

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Principal Investigator/Archaeologist  
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**Figure 1**  
 Project Location Site  
 Bloemer and Kirschenman Exploratory Oil and Gas Project

Naftex Operating Company  
 1900 Avenue of the Stars, Suite 2450  
 Los Angeles, CA. 90067



June 8, 2012

Lalo Franco  
Cultural Coordinator  
Santa Rosa Tachi Rancheria  
P.O. Box 8  
Lemoore, California 93245

**Subject: Tribal Consultation for the Naftex Operating Company Proposed 20 Acre Oil and Gas Exploration Project, Kern County, California.**

Dear Lalo:

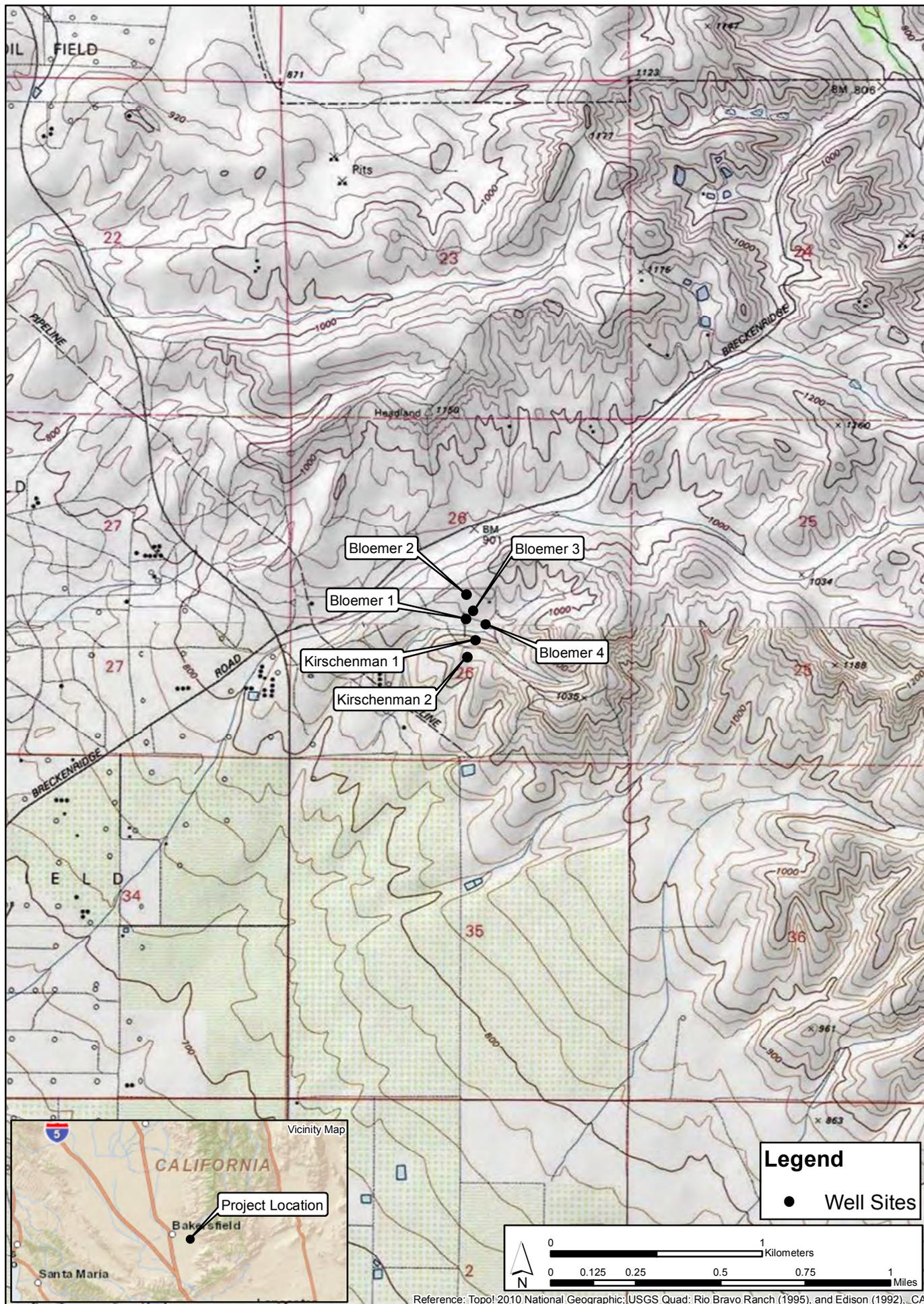
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Principal Investigator/Archaeologist  
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 Bloemer and Kirschenman Exploratory Oil and Gas Project

Naftex Operating Company  
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City, State, ZIP+4 *Wasco, CA. 93280*

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Sent To *Rueben Barros*

Street, Apt. No.; or PO Box No. *P.O. Box 8*

City, State, ZIP+4 *Lemoore, CA. 93245*

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Sent To *David Laughlinhorse Robinson*

Street, Apt. No.; or PO Box No. *P.O. Box 1547*

City, State, ZIP+4 *Kennville, CA. 93238*

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Sent To *Neil Peyron*

Street, Apt. No.; or PO Box No. *P.O. Box 589*

City, State, ZIP+4 *Porterville, CA. 93258*

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Sent To *Robert Robinson*

Street, Apt. No.; or PO Box No. *P.O. Box 401*

City, State, ZIP+4 *Weldon, CA. 93283*

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Sent To *Ron Wermuth*

Street, Apt. No.; or PO Box No. *P.O. Box 168*

City, State, ZIP+4 *Kennville, CA. 93238*

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<b>Total Postage &amp; Fees</b>	<b>\$</b>	<b>\$3.40</b>	



Sent To Delia Dominguez  
 Street, Apt. No.;  
 or PO Box No. 115 Radio Street  
 City, State, ZIP+4 Bakersfield, CA 93305

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<b>Total Postage &amp; Fees</b>	<b>\$</b>	<b>\$3.40</b>	



Sent To Dr. Donna Begay  
 Street, Apt. No.;  
 or PO Box No. P.O. Box 226  
 City, State, ZIP+4 Lake Isabella, CA 93240

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Sent To Lalo Franco  
 Street, Apt. No.;  
 or PO Box No. P.O. Box 8  
 City, State, ZIP+4 Laurel, CA 93245

PS Form 3800, August 2006 See Reverse for Instructions

**ATTACHMENT C:  
PHOTOGRAPHIC DOCUMENTATION**



Photo 1: Project Site Overview (E View)



Photo 2: Project Site Overview (SE View)