



Appendix A. Acronyms and Abbreviations

AAQS	Ambient Air Quality Standards
AB 2588	Assembly Bill 2588 – Air Toxics “Hot Spots” Information and Assessment Act
ARB	California Air Resources Board
ATC	Authority to Construct
BACT	Best Available Control Technology
dB	Decibel
BPS	Best Performance Standards
CAL FIRE	California Department of Forestry and Fire Prevention
Cal/OSHA	California Department of Industrial Relations - Division of Occupational Safety and Health
CBSC	California Building Standards Code
CCR	California Code of Regulations
CFR	Code of Federal Regulation
CDFA	California Department of Food and Agriculture
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
District	San Joaquin Valley Unified Air Pollution Control District
DOGGR	California Division of Oil, Gas, and Geothermal Resources
DTSC	California Department of Toxic Substances Control
ERC	Emission Reduction Credit
ERG	Environmental Review Guidelines
ESA	Endangered Species Act
FGR	Flue Gas Recirculation
HAP	Hazardous Air Pollutant
HRA	Health Risk Assessment
LRA	Local Responsible Agency
MBHCP	Metropolitan Bakersfield Habitat Conservation Plan
MEI	Maximally Exposed Individual
MMBtu/hr	Million British Thermal Units Per Hour
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NO _x	Oxides of Nitrogen
NRA	California Natural Resources Agency
NSR	New Source Review
O ₂	Oxygen



OSHA	US Department of Labor - Occupational Safety and Health Administration
PM ₁₀	Particulate Matter 10 microns in diameter
PM _{2.5}	Particulate Matter 2.5 microns in diameter
ppmv	Parts Per Million, Volumetric
PRC	Public Resources Code
psia	Pounds Per Square Inch Absolute
PSD	Prevention of Significant Deterioration
RMR	Risk Management Review
ROG	Reactive Organic Gases
RWQCB	Regional Water Quality Control Board
SIP	State Implementation Plan
SOx	Sulfur Oxides
T-BACT	Toxics Best Available Control Technology
TAC	Toxic Air Contaminant
TEOR	Thermally Enhanced Oil Recovery
tpy	Tons Per Year
US EPA	US Environmental Protection Agency
USFWS	US Fish and Wildlife Service
VFHCP	Valley Floor Habitat Conservation Plan
VOC	Volatile Organic Compound
VPC	Vintage Production California, LLC



Appendix B. Mitigation Monitoring and Reporting Program

Impact	Significance Prior to Mitigation	Measure Number	Mitigation Measure	Enforcement Agency	Significance After Mitigation
Operational emissions may exceed the District's thresholds of significance.	Potentially Significant	AIR-1	<p>For Units -141-2 through -145-2 (Option 1) the following condition will be included in the ATC:</p> <p>Prior to operating equipment under this Authority to Construct, Permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 1,353 lb/quarter; PM10: 729 lb/quarter; and VOC: 144 lb/quarter. Offsets include the applicable offset ratio specified in Section 4.8 Rule 2201 (as amended 4/21/11). PM10 may be offset using SOx at an interpollutant offset ratio of 1.0 tons SOx/ton PM10. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act]</p>	San Joaquin Valley Air Pollution Control District	Less than Significant
		AIR -2	<p>For Units -141-3 through -145-3 (Option 2) the following condition will be included in the ATC:</p> <p>Prior to operating equipment under this Authority to Construct, Permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 490 lb/quarter and PM10: 729 lb/quarter. Offsets include the applicable offset ratio specified in Section 4.8 Rule 2201 (as amended 4/21/11). PM10 may be offset using SOx at an interpollutant offset ratio of 1.0 tons SOx/ton PM10. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act]</p>		
		AIR-3	<p>For Units -162-1 through -164-1, the following condition will be included in the ATC:</p> <p>Prior to operating equipment under this Authority to Construct, Permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 2,259 lb/quarter; PM10: 1,560 lb/quarter; and VOC: 1,129</p>		



Impact	Significance Prior to Mitigation	Measure Number	Mitigation Measure	Enforcement Agency	Significance After Mitigation
		AIR-4	<p>lb/quarter. Offsets include the applicable offset ratio specified in Section 4.8 Rule 2201 (as amended 4/21/11). PM10 may be offset using SOx at an interpollutant offset ratio of 1.0 tons SOx/ton PM10. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act]</p> <p>For Unit -186-0 the following condition will be included in the ATC:</p> <p>Prior to operating equipment under this Authority to Construct, Permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 1,943 lb/quarter; PM10: 729 lb/quarter; and VOC: 1,336 lb/quarter. Offsets include the applicable offset ratio specified in Section 4.8 Rule 2201 (as amended 4/21/11). PM10 may be offset using SOx at an interpollutant offset ratio of 1.0 tons SOx/ton PM10. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act]</p>		
<p>The project could result in take of a candidate, sensitive, or special status species.</p>	<p>Potentially Significant</p>	<p>BIO-1</p> <p>BIO-2</p>	<p>A Qualified Wildlife Biologist will conduct a focused pre-construction survey to determine the presence/absence of suitable habitat for sensitive species as well as the potential for impacts to these sensitive species prior to the onset of ground disturbance. The survey shall be conducted in accordance with the standard protocol of the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW). If more than 30 days pass before the onset of ground disturbance, an additional survey shall be conducted by a Qualified Wildlife Biologist within 30 days prior to the onset of ground disturbance.</p> <p>During construction activities, standardized avoidance measures shall be implemented to preclude take of special status species. If standardized avoidance measures cannot be</p>	<p>San Joaquin Valley Air Pollution Control District</p>	<p>Less than Significant</p>



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		BIO-3	<p>achieved Permittee will consult with the California Department of Fish and Wildlife (CDFW) and U.S. Fish and Wildlife Service (USFWS) to develop alternative compliance measures and/or obtain an Incidental Take Permit. If standardized avoidance measures fail and there is a take of a threatened or endangered species Permittee will notify USFWS, CDFW, and District immediately.</p> <p>Project-related vehicles should observe a daytime speed limit of 20-mph throughout the site in all project areas, except on county roads and State and Federal highways. In the event that construction activities should occur during night time, a 10-mph speed limit shall be observed from dusk until dawn. Off-road traffic outside of designated project areas should be prohibited.</p>		
		BIO-4	<p>During construction activities, all excavated, steep-walled holes or trenches more than two (2) feet deep shall be covered at the close of each working day by plywood or similar materials. If the holes or trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks shall be installed. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW) shall be contacted as noted in Measure BIO-15.</p>		
		BIO-5	<p>All construction pipes, culverts, or similar structures with a diameter of four (4) inches or greater that are stored at a construction site for one (1) 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 U.S. Fish and Wildlife Service (USFWS) has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved</p>		



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		BIO-6	<p>only once to remove it from the path of construction activity, until the fox has escaped.</p> <p>All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in securely closed containers and removed at least once a week from the construction sites.</p>		
		BIO-7	<p>No firearms shall be allowed on the project sites.</p>		
		BIO-8	<p>No pets, such as dogs or cats, shall be permitted on the project sites.</p>		
		BIO-9	<p>Use of rodenticides and herbicides in the project sites shall be restricted. If use of these compounds is deemed necessary, Permittee shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency (USEPA), California Department of Food and Agriculture (CDFA), and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by the U.S. Fish and Wildlife Service (USFWS). If rodent control must be conducted, zinc phosphide shall be used.</p>		
		BIO-10	<p>Permittee shall appoint a representative to be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped kit fox. The representative will be identified during the employee education program and their name and telephone number shall be provided to the U.S. Fish and Wildlife Service (USFWS).</p>		
		BIO-11	<p>An employee education program shall be conducted for any project that has anticipated impacts to kit fox or other endangered species. The program should consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and/or agency</p>		



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		BIO-12	<p>personnel involved in the project. The program should include the following: a description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information should be prepared for distribution to the previously referenced people and anyone else who may enter the project site.</p> <p>Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. should be re-contoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject to "temporary" disturbance means any area that is disturbed during the project, but after project completion will not be subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas should be determined on a site-specific basis in consultation with the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW), and revegetation experts.</p>		
		BIO-13	<p>In the case of trapped animals, escape ramps or structures shall be installed immediately to allow the animal(s) to escape, or the Service should be contacted for guidance.</p>		
		BIO-14	<p>Any contractor, employee, or agency personnel who are responsible for inadvertently killing or injuring a San Joaquin kit fox shall immediately report the incident to their representative identified in Measure BIO-10 above. This representative shall contact the California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS) immediately in the case of a dead, injured or entrapped kit fox. The CDFW contact for immediate assistance is State Dispatch at (916)</p>		



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		BIO-15	<p>445-0045. They will contact the local warden or, Mr. Paul Hoffman, Wildlife Biologist. Contact information for CDFW and USFWS is provided below in Measure BIO-15.</p> <p>The Sacramento Fish and Wildlife Office and California Department of Fish and Wildlife (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. Contact information is provided below.</p> <p>CDFW: Ms. Reagen O'Leary, Environmental Scientist 1234 E. Shaw Avenue Fresno, CA 93710 Phone: (559) 243-4014</p> <p>CDFW: Mr. Paul Hoffman, Wildlife Biologist 1701 Nimbus Road, Suite A Rancho Cordova, CA 95670 (530) 934-9309</p> <p>USFWS: Chief of the Division of Endangered Species 2800 Cottage Way, Suite W2605 Sacramento, CA 95825-1846 (916) 414-6620 or (916) 414-6600.</p>		
		BIO-16	<p>New sightings of kit fox shall be reported to the California Natural Diversity Database (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 U.S. Fish and Wildlife Service (USFWS) at the following address:</p> <p>U.S. Fish and Wildlife Service Endangered Species Division 2800 Cottage Way, Suite W2605</p>		



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		BIO-17	<p>Sacramento, CA 95825-1846</p> <p>If habitat for, and/or the presence of sensitive species are documented in the pre-construction surveys, additional focused biological surveys will be conducted by a Qualified Wildlife Biologist for the appropriate survey periods as identified in the CDFW and USFWS protocols identified below. [Public Resources Code 21000-21177; California Environmental Quality Act]</p> <ul style="list-style-type: none"> • Blunt-nosed leopard lizard – Approved Survey Methodology for the Blunt-nosed Leopard Lizard (CDFG, 2004) • San Joaquin kit fox – Standardized Recommendation for Protection of the San Joaquin Kit Fox Prior To or During Ground Disturbance (USFWS, 2011) • Burrowing owl – Staff Report on Burrowing Owl Mitigation dated March 7, 2012 (CDFG, 2012) <p>Permittee shall retain at least one staff or contractor representative that has successfully completed the applicant's Biological Awareness training program on-site during all ground disturbing activities and project construction. In the event that special status species are discovered on or near the project site, said staff/contractor shall immediately contact the Company's biological representative identified in the biological training.</p>		
		BIO-18	<p>Blunt-nosed leopard lizard surveys following current CDFG guidelines shall be completed no more than one year prior to initiation of project if construction activities will impact potential habitat for the species. Potential habitat includes areas that have not been previously disturbed or that have recovered to support vegetation and small mammal burrows that represent potential shelter for blunt-nosed leopard lizard. If at any time blunt-nosed leopard lizards are observed during these surveys,</p>		
		BIO-19	<p>Blunt-nosed leopard lizard surveys following current CDFG guidelines shall be completed no more than one year prior to initiation of project if construction activities will impact potential habitat for the species. Potential habitat includes areas that have not been previously disturbed or that have recovered to support vegetation and small mammal burrows that represent potential shelter for blunt-nosed leopard lizard. If at any time blunt-nosed leopard lizards are observed during these surveys,</p>		



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		<p>BIO-20</p> <p>BIO-21</p> <p>BIO-22</p> <p>BIO-23</p>	<p>no disturbance of areas that could be occupied by this species should occur within 500 feet of the observation without prior approval from CDFG and USFWS.</p> <p>The limits of project site grading shall be clearly delineated prior to construction activities by posting stakes, flags and/or rope or cord, as necessary.</p> <p>Traffic restraints and signs shall be established and issued to minimize temporary disturbances. All project-related vehicle traffic shall be restricted to established roads, designated access roads and routes, project site, storage areas, and staging and parking areas. Off-road traffic outside designated project boundaries shall be prohibited.</p> <p>All equipment storage and parking during project activities shall be confined to the designated construction area or to previously disturbed offsite areas that are not habitat for listed species.</p> <p>If vegetation clearing is conducted between February and mid-September, a survey targeting identification of nesting birds shall be conducted. This survey may be conducted in conjunction with the pre-activity survey. If any nesting birds covered by the Migratory Bird Treaty Act are identified, nests shall be avoided by an appropriate distance such that nesting activities are not interrupted until the young have fledged. Determination of when young have fledged from active nests will be determined by a qualified biologist. If any nesting birds are found during vegetation clearing activities, a qualified biologist shall be contacted to determine appropriate avoidance measures. If any burrowing owl burrows are observed, avoidance measures should be consistent with those included in "Staff Report on Burrowing Owl Mitigation," CDFG (2012) taking into account existing disturbances such as roads and structures. Absolutely no disturbance to active nests shall occur without a permit pursuant to the Migratory Bird Treaty Act. For nesting sites, based on the level of disturbance, the following</p>		



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		<p>BIO-24</p>	<p>buffer distances shall apply and be adequately delineated around active nests.</p> <ul style="list-style-type: none"> • April 1 – Aug 15: low disturbance, 200 meters; medium disturbance, 500 m; and high disturbance, 500 m. • Aug 16 – Oct 15: low disturbance, 200 meters; medium disturbance, 200 m; and high disturbance, 500 m. • Oct 16 – Mar 31: low disturbance, 50 meters; medium disturbance, 100 m; and high disturbance, 500 m. <p>All power poles and electrical facilities should be designed to minimize the potential for electrocution of migratory and resident birds, including consideration of birds with a wingspan of up to 9 feet.</p>		
		<p>BIO-25</p>	<p>To reduce potential impacts to the San Joaquin kit fox, Permittee shall implement the following avoidance measures:</p> <ul style="list-style-type: none"> • For San Joaquin kit fox dens within 200 feet of the construction area, avoidance zones shall be identified by wooden or metal stakes connected by flagging or by other similar fencing material. Each avoidance zone shall have the following distance measured outward from the den or burrow entrances or the edge of the plant population. <ul style="list-style-type: none"> ❖ Potential den: 50 ft ❖ Atypical den: 50 ft ❖ Known den: 100 ft ❖ Natal/pupping den (occupied and unoccupied): Contact CDFW ❖ San Joaquin antelope squirrel: 50 ft • Potential kit fox dens shall be monitored until they can be shown to be unoccupied based on the procedures 		



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		BIO-26	<p>outlined in <i>Standardized Recommendation for Protection of the San Joaquin Kit Fox Prior To or During Ground Disturbance</i> (USFWS, 2011), and then covered with plywood that is firmly secured to prevent access by kit foxes during project activities. The covers shall not be installed more than 14 days prior to the start of construction. The covers shall remain in place for the duration of construction, after which time they shall be removed.</p> <ul style="list-style-type: none"> • If avoidance of any potential kit fox den within the project site is not practicable, and the den may be unavoidably damaged or destroyed by project actions, the following procedure shall be implemented: Prior to surface-disturbing activities, any such potential kit fox den shall be completely excavated and then backfilled to preclude later use by kit foxes during the construction period. If, at any time during monitoring or excavation, any sign that the den may be or has been occupied is found, the den's status changes to "known". • Potential kit fox dens may be excavated provided that the following conditions are satisfied: (1) the den classification is determined by a qualified wildlife biologist; and (2) the excavation is conducted by or under the direct supervision of a qualified wildlife biologist. <p>To reduce potential impacts to the San Joaquin kit fox, antelope squirrel and giant kangaroo rat, Permittee shall implement the following avoidance measures:</p> <ul style="list-style-type: none"> • If dens or nest burrows are located outside of the construction area but within the avoidance zone designated for the resource type (listed above), the boundary of the avoidance zone shall be drawn to include all areas within the radius stated above, except those falling within the construction area. If the 		



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		BIO-27	<p>construction area encroaches on an avoidance area, potential dens shall not be excavated unless a qualified biologist determines that excavation is absolutely necessary.</p> <ul style="list-style-type: none"> • Avoidance zones shall be maintained until all construction activities have been completed, and then shall be removed by a qualified biologist. • Dens identified by a qualified biologist as either a "known" den or as a "suspected" pupping den shall not be excavated unless the appropriate California Endangered Species Act (CESA) and Federal Endangered Species Act permits authorized such excavations. In addition, any occupied natal or pupping dens cannot be destroyed until the pups and adults have vacated. <p>To reduce potential impacts to Nelson's antelope squirrel and the giant kangaroo rat, Permittee shall implement the following avoidance measures:</p> <ul style="list-style-type: none"> • For burrows within 200 feet of the construction area, avoidance zones shall be identified by wooden or metal stakes connected by flagging or by other similar fencing material. Each avoidance zone shall be a minimum of 50 ft outward from the den or burrow entrances or the edge of the plant population. • If burrows cannot be avoided, no project activities shall occur until the appropriate CESA permit has been issued by CDFW. The following measures are required to minimize and mitigate for impacts to antelope squirrel and the giant kangaroo rat: <ul style="list-style-type: none"> ❖ Burrows will be avoided to the maximum extent practicable. ❖ If occupied burrows cannot be avoided, a trapping effort will be conducted by a properly permitted 		



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			<p>wildlife biologist for the purpose of either relocation or holding and releasing individuals back into temporarily disturbed portions of the project site.</p> <ul style="list-style-type: none"> ❖ CDFW will be provided with a notification at least 30 days prior to trapping and relocation with a plan that includes at least the following information: 1) approximate number of San Joaquin antelope squirrels to be affected; 2) previous experience of the wildlife biologist conducting the trapping and relocation; 3) description of trapping effort; 4) description of relocation plans; 5) whether individuals will be temporarily held for release; 6) off-site release locations; 7) artificial burrow placement; and 8) proposed results reporting schedule. If CDFG does not respond within 30 days of receiving the notification, trapping and relocation will proceed as stated in the notification. San Joaquin antelope squirrels should not be relocated greater than 500 feet from capture location without prior approval from CDFW. 		
<p>The project could have an impact on archaeological or paleontological resources.</p>	<p>Less than Significant</p>	<p>CUL-1</p>	<p>In the event that archaeological/paleontological resources are discovered during ground-disturbing activities, all work within 100 feet of the find shall cease and Permittee shall notify and retain a qualified archaeologist/paleontologist to assess and provide an evaluation of the significance of the find. A qualified archaeologist/paleontologist shall determine whether avoidance is necessary and feasible in light of the factors such as the nature of the find, project design, costs, and other considerations, and, if necessary, develop appropriate mitigation measures in consultation with Kern County and the Native American Heritage Commission (NAHC).</p>	<p>San Joaquin Valley Air Pollution Control District</p>	<p>Less than Significant</p>
		<p>CUL-2</p>	<p>In the event that human remains are discovered during ground-disturbing activities, all work within 100 feet of the find shall</p>		



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		CUL-3	<p>cease and the discovery shall immediately be reported to the County Coroner (CC) and Native American Heritage Commission (NAHC) for further assessment. Permittee shall identify appropriate measures for treatment or disposition of the remains in consultation with the CC and NAHC.</p> <p>Prior to the start of construction activities, Permittee shall contact the appropriate Information Center to determine if all or part of the Area of Project Effect (APE) has been surveyed for cultural places. Inquiries should be submitted to the Information Center at the following address:</p> <p>Dr. Brian Hemphill, Coordinator Attn: Celeste Thomson Southern San Joaquin Valley Information Center California State University, Bakersfield 9001 Stockdale Highway (46MEC) Bakersfield, CA 93311 Phone: (661) 654-2289 Email: ssjvic@csusb.edu</p>		
		CUL-4	<p>If additional archaeological inventory is required, Permittee shall notify the District and shall coordinate with the NAHC in the preparation of a professional report detailing the findings and recommendations of the records search and field survey. Permittee shall provide the Kern County Planning Department the final report containing site forms, and detailing site significance and mitigation measures. All information regarding site locations, Native American human remains, and associated funerary objects will be in a separate confidential addendum and not made available for public disclosure. [Public Resources Code 21000-21177: California Environmental Quality Act]</p>		
		CUL-5	<p>Prior to the start of construction activities, Permittee shall contact the Native American Contacts identified in the Sacred</p>		



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			<p>Lands File Check to determine if the project may impact any cultural resources. [Public Resources Code 21000-21177: California Environmental Quality Act]</p> <p>Kawaiisu Tribe of Tejon Reservation David Laughinghorse Robinson P.O. Box 1547 Kernville, CA 93238</p> <p>Kern Valley Indian Council Robert Robinson, Co-Chairperson P.O. Box 401 Weldon, CA 93283 Phone: (760) 549-2131</p> <p>Kitanemuk & Yowlumne Tejon Indians Delia Dominguez, Chairperson 115 Radio Street Bakersfield, CA 93305 Phone (626) 339-6785</p> <p>Santa Rosa Rancheria Rueben Barrios Sr., Chairperson P.O. Box 8 Lemoore, CA 93245 Phone: (559) 924-1278</p> <p>Santa Rosa Tachi Rancheria Lalo Franco, Cultural Coordinator P.O. Box 8 Lemoore, CA 93245 Phone (559) 924-1278 ext. 5</p> <p>Tejon Indian Tribe Katherine Montes Morgan, Chairperson 1731 Hasti-Acres Drive, Suite 108 Bakersfield, CA 93309</p>		



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			<p>Phone: (661) 758-2303</p> <p>Tubatulabals of Kern Valley Robert L. Gomez, Jr., Tribal Chairperson P.O. Box 226 Lake Isabella, CA 93240 Phone: (760) 379-4590</p> <p>Tule River Indian Tribe Neil Peyron, Chairperson P.O. Box 589 Porterville, CA 93258 Phone: (559) 781-4271</p> <p>Wuksache Indian Tribe/Eshom Valley Band Kenneth Woodrow, Chairperson 1179 Rock Haven Court Salinas, CA 93906 Phone (831) 443-9702</p> <p>Ron Wermuth P.O. Box 168 Kernville, CA 93238 Phone: (760) 376-4240</p>		
Operational emissions may exceed the District's thresholds of significance.	Potentially Significant	GHG-1	<p>For Units -141 through -145 and -186 the following condition will be included in the ATC:</p> <p>Steam generator shall be equipped with variable frequency drive electrical motors driving the blower and water pump and a convection section with at least 235 square feet of heat transfer surface area per MMBtu/hr of maximum rated heat input (verified by manufacturer) or a manufacturer's overall thermal efficiency rating of 88%.</p> <p>For Units -162 through -164 the following condition will be</p>	San Joaquin Valley Air Pollution Control District	Less than Significant
		GHG-2			



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The project could expose employees and the public to hazardous materials.	Less than Significant	HAZ-1 HAZ-2 HAZ-3 HAZ-4	<p>included in the ATC:</p> <p>Steam generator shall be equipped with variable frequency drive high efficiency electrical motors driving the blower and water pump, split flow dual pass water feed configuration, a convection section having at least 128 square feet of heater transfer surface area per MMBtu/hr of maximum rated heat input (verified by the manufacturer) and at least six inches of castable refractory or a manufacturer's overall thermal efficiency rating of at least 85% [Public Resources Code 21000-21177: California Environmental Quality Act]</p> <p>Prior to ground disturbance activities, Permittee shall identify all wells in the vicinity of the project site and submit records of discovery to the Division of Oil, Gas, and Geothermal Resources (DOGGR) for compliance with DOGGR's "Well Review Program". Permittee shall retain these records on-site.</p> <p>Permittee shall retain written records on-site and notify DOGGR in the event unknown, unrecorded, abandoned, or damaged wells are discovered.</p> <p>Any wells discovered or exposed during construction activities will be tested for flammable vapors. Permittee shall retain these records onsite.</p> <p>Permittee shall retain written records on-site demonstrating compliance with all applicable Department of Toxic Substances Control (DTSC) regulations, including biennial hazardous waste reports for the use, discharge, and transport of potentially hazardous materials if necessary.</p>	San Joaquin Valley Air Pollution Control District	Less than Significant



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Project related waste water could have an impact on water quality.	Less than Significant	HYD-1	Permittee shall comply with all applicable Division of Oil, Gas, and Geothermal Resources (DOGGR) Underground Injection Control (UIC) requirements. Permittee shall retain any records deemed necessary by DOGGR on-site.	San Joaquin Valley Air Pollution Control District	Less than Significant
		HYD-2	Permittee shall comply with all applicable Regional Water Quality Control Board (RWQCB) water quality standard and waste discharge regulations. Permittee shall retain any permits/records deemed necessary by the RWQCB on-site.		



Appendix C. Construction Emissions

Road Construction Emissions Model, Version 7.1.2

Emission Estimates for ->										
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	4.4	40.1	57.5	22.2	2.2	20.0	6.1	2.0	4.2	9,538.5
Grading/Excavation	6.6	48.6	79.5	23.4	3.4	20.0	7.3	3.1	4.2	11,194.7
Drainage/Utilities/Sub-Grade	6.8	47.8	67.5	13.3	3.3	10.0	5.1	3.1	2.1	10,375.0
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (pounds/day)	6.8	48.6	79.5	23.4	3.4	20.0	7.3	3.1	4.2	11,194.7
Total (tons/construction project)	0.4	3.1	4.8	1.2	0.2	1.0	0.4	0.2	0.2	705.9
Notes: Project Start Year -> 2013										
Project Length (months) -> 6										
Total Project Area (acres) -> 6										
Maximum Area Disturbed/Day (acres) -> 2										
Total Soil Imported/Exported (yd ³ /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 ->										
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	2.0	18.2	26.1	10.1	1.0	9.1	2.8	0.9	1.9	4,335.7
Grading/Excavation	3.0	22.1	36.1	10.6	1.6	9.1	3.3	1.4	1.9	5,088.5
Drainage/Utilities/Sub-Grade	3.1	21.7	30.7	6.1	1.5	4.5	2.3	1.4	0.9	4,715.9
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (kilograms/day)	3.1	22.1	36.1	10.6	1.6	9.1	3.3	1.4	1.9	5,088.5
Total (megagrams/construction project)	0.4	2.8	4.3	1.1	0.2	0.9	0.4	0.2	0.2	640.3
Notes: Project Start Year -> 2013										
Project Length (months) -> 6										
Total Project Area (hectares) -> 3										
Maximum Area Disturbed/Day (hectares) -> 1										
Total Soil Imported/Exported (meters ³ /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 7.1.2

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 C:10 through C:25.



Input Type

Project Name: _____

Construction Start Year: 2013

Project Type: 1

Project Construction Time: 6.0

Predominant Soil/Site Type: Enter 1, 2, or 3: 1

Project Length: 0.2

Total Project Area: 6.4

Maximum Area Disturbed/Day: 2.0

Water Trucks Used: 1

Soil Imported: 0.0

Soil Exported: 0.0

Average Truck Capacity: 20.0

Enter a Year between 2009 and 2025 (inclusive): _____

1 New Road Construction

2 Road Widening

3 Bridge/Overpass Construction

months: _____

1. Sand Gravel

2. Weathered Rock-Earth

3. Blasted Rock

miles: _____

acres: _____

1. Yes

2. No

yd³/day: _____

yd³/day: _____

yd³ (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 C:34 through C:37.

Construction Periods	User Override of Construction Months		Program Calculated Months	
	1.00	3.00	2.40	2.10
Grubbing/Land Clearing	1.00	3.00	2.40	2.10
Grading/Excavation	2.00	2.00	0.90	6.00
Drainage/Utilities/Sub-Grade	6.00	6.00	0.00	0.00
Paving			0.00	0.00
Totals			0.00	0.00

	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

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

User Input		User Override of	
		Soil Hauling Defaults	Default Values
Miles/round trip			30
Round trips/day			0
Vehicle miles traveled/day (calculated)			0

Hauling Emissions		ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate (grams/mile)		0.40	11.32	1.78	0.35	0.26	1716.84
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.

Worker Commute Emissions		User Override of Worker	
		Commute Default Values	Default Values
Miles/ one-way trip			20
One-way trips/day			2
No. of employees: Grubbing/Land Clearing	8.00		3
No. of employees: Grading/Excavation	11.00		6
No. of employees: Drainage/Utilities/Sub-Grade	7.00		6
No. of employees: Paving			4

Worker Commute Emissions		ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate - Grubbing/Land Clearing (grams/mile)		0.204	0.283	2.490	0.047	0.020	443.262
Emission rate - Grading/Excavation (grams/mile)		0.204	0.283	2.490	0.047	0.020	443.262
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)		0.204	0.283	2.490	0.045	0.020	443.262
Emission rate - Paving (grams/mile)		0.000	0.000	0.000	0.000	0.000	0.000
Emission rate - Grubbing/Land Clearing (grams/trip)		0.678	0.455	5.753	0.004	0.004	95.442
Emission rate - Grading/Excavation (grams/trip)		0.678	0.455	5.753	0.004	0.004	95.442
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)		0.678	0.455	5.753	0.004	0.004	95.442
Emission rate - Paving (grams/trip)		0.000	0.000	0.000	0.000	0.000	0.000
Pounds per day - Grubbing/Land Clearing		0.191	0.231	2.161	0.034	0.015	319.159
Tons per const. Period - Grub/Land Clear		0.002	0.003	0.024	0.000	0.000	3.511
Pounds per day - Grading/Excavation		0.191	0.231	2.161	0.034	0.015	319.159
Tons per const. Period - Grading/Excavation		0.006	0.008	0.071	0.001	0.000	10.532
Pounds per day - Drainage/Utilities/Sub-Grade		0.191	0.231	2.161	0.032	0.015	319.159
Tons per const. Period - Drain/Util/Sub-Grade		0.004	0.005	0.048	0.001	0.000	7.021
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		0.013	0.015	0.143	0.002	0.001	21.064

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

Water Truck Emissions	User Override of Default # Water Trucks		Program Estimate of Number of Water Trucks		User Override of Truck Miles Traveled/Day		Default Values Miles Traveled/Day		
	Default #	User Override	Number of	Number of	Miles Traveled/Day	Miles Traveled/Day	PM10	CO2	
Grubbing/Land Clearing - Exhaust	2.00		1		20.00	40			
Grading/Excavation - Exhaust	2.00		1		20.00	40			
Drainage/Utilities/Subgrade	1.00		1		20.00	40			
			ROG		NOx		CO	PM2.5	CO2
Emission rate - Grubbing/Land Clearing (grams/mile)			0.40		11.32		1.78	0.26	1716.84
Emission rate - Grading/Excavation (grams/mile)			0.40		11.32		1.78	0.26	1716.84
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)			0.40		11.32		1.78	0.26	1716.84
Pounds per day - Grubbing/Land Clearing			0.04		1.00		0.16	0.02	151.26
Tons per const. Period - Grub/Land Clear			0.00		0.03		0.01	0.00	4.99
Pound per day - Grading/Excavation			0.04		1.00		0.16	0.02	151.26
Tons per const. Period - Grading/Excavation			0.00		0.03		0.01	0.00	4.99
Pound per day - Drainage/Utilities/Subgrade			0.02		0.50		0.08	0.01	75.63
Tons per const. Period - Drainage/Utilities/Subgrade			0.00		0.01		0.00	0.00	1.66

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

Fugitive Dust	User Override of Max Acreage Disturbed/Day		Default Maximum Acreage/Day		PM10 pounds/day		PM2.5 pounds/day	
	Default	User Override	Maximum Acreage/Day	Maximum Acreage/Day	tons/per period	tons/per period	tons/per period	tons/per period
Fugitive Dust - Grubbing/Land Clearing			2		20.0	0.2	4.2	0.0
Fugitive Dust - Grading/Excavation			2		20.0	0.5	4.2	0.1
Fugitive Dust - Drainage/Utilities/Subgrade		1.00	2		10.0	0.2	2.1	0.0

Off-Road Equipment Emissions

Grubbing/Land Clearing Override of Default Number of Vehicles	Default Number of Vehicles Program-estimate	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	CO2 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
	1.00	Bore/Drill Rigs	2.25	28.36	34.22	1.17	1.07	7059.32
		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
		Crawler Tractors	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	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
	1.00	Scrapers	1.60	7.26	20.03	0.81	0.75	1609.94
	0	Signal Boards	0.20	0.60	0.59	0.05	0.05	62.97
		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	0.15	1.57	1.45	0.07	0.06	335.80
		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	4.2	37.8	56.3	2.1	1.9	9068.0
		Grubbing/Land Clearing	0.0	0.4	0.6	0.0	0.0	99.7

Paving	Override of Default	Number of Vehicles	Default		ROG	CO	NOx	PM10	PM2.5	CO2
			Number of Vehicles	Type						
				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
				Crawler Tractors	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
		1.00		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	1	Pavers	0.00	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	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
			1	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
		1.00		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	0.0	0.0	0.0	0.0	0.0	0.0
				Paving	0.0	0.0	0.0	0.0	0.0	0.0
Total Emissions all Phases (tons per construction period) =>					0.4	2.9	4.7	0.2	0.2	673.2

Equipment default values for horsepower and hours/day can be overridden in cells C289 through C322 and E289 through E322.

Equipment	Default Values Horsepower	Default Values Hours/day
Aerial Lifts	63	8
Air Compressors	106	8
Bore/Drill Rigs	206	8
Cement and Mortar Mixers	10	8
Concrete/Industrial Saws	64	8
Cranes	226	8
Crawler Tractors	208	8
Crushing/Proc. Equipment	142	8
Excavators	163	8
Forklifts	89	8
Generator Sets	66	8
Graders	175	8
Off-Highway Tractors	123	8
Off-Highway Trucks	400	8
Other Construction Equipment	172	8
Other General Industrial Equipment	88	8
Other Material Handling Equipment	167	8
Pavers	126	8
Paving Equipment	131	8
Plate Compactors	8	8
Pressure Washers	26	8
Pumps	53	8
Rollers	81	8
Rough Terrain Forklifts	100	8
Rubber Tired Dozers	255	8
Rubber Tired Loaders	200	8
Scrapers	362	8
Signal Boards	20	8
Skid Steer Loaders	65	8
Surfacing Equipment	254	8
Sweepers/Scrubbers	64	8
Tractors/Loaders/Backhoes	98	8
Trenchers	81	8
Welders	45	8

Road Construction Emissions Model, Version 7.1.2

Emission Estimates for ->											
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	-	-	-	-	-	-	-	-	-	-	
Drainage/Utilities/Sub-Grade	8.5	74.6	94.5	14.2	4.2	10.0	5.9	3.8	2.1	17,239.8	
Paving	1.9	7.9	16.3	1.0	1.0	-	0.9	0.9	-	1,519.5	
Maximum (pounds/day)	8.5	74.6	94.5	14.2	4.2	10.0	5.9	3.8	2.1	17,239.8	
Total (tons/construction project)	0.6	5.0	6.4	0.6	0.3	0.3	0.3	0.3	0.1	1,154.5	

Notes: Project Start Year -> 2014

Project Length (months) -> 7

Total Project Area (acres) -> 6

Maximum Area Disturbed/Day (acres) -> 2

Total Soil Imported/Exported (yd³/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 ->											
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	-	-	-	-	-	-	-	-	-	-	
Drainage/Utilities/Sub-Grade	3.8	33.9	43.0	6.4	1.9	4.5	2.7	1.7	0.9	7,836.3	
Paving	0.9	3.6	7.4	0.4	0.4	-	0.4	0.4	-	690.7	
Maximum (kilograms/day)	3.8	33.9	43.0	6.4	1.9	4.5	2.7	1.7	0.9	7,836.3	
Total (megagrams/construction project)	0.5	4.5	5.8	0.5	0.3	0.2	0.3	0.2	0.1	1,047.2	

Notes: Project Start Year -> 2014

Project Length (months) -> 7

Total Project Area (hectares) -> 3

Maximum Area Disturbed/Day (hectares) -> 1

Total Soil Imported/Exported (meters³/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 Data Entry Worksheet

Version 7.1.2



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	
Construction Start Year	2014
Project Type	1
Project Construction Time	7.0
Predominant Soil/Site Type: Enter 1, 2, or 3	1
Project Length	0.2
Total Project Area	6.4
Maximum Area Disturbed/Day	2.0
Water Trucks Used?	1
Soil Imported	0.0
Soil Exported	0.0
Average Truck Capacity	20.0

Enter a Year between 2009 and 2025 (inclusive)

1 New Road Construction
2 Road Widening
3 Bridge/Overpass Construction

months

1. Sand Gravel
2. Weathered Rock-Earth
3. Blasted Rock

miles
acres
acres

1. Yes
2. No

yd³/day
yd³/day
yd³ (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	0.70	0.70
Grading/Excavation	2.80	2.80
Drainage/Utilities/Sub-Grade	6.00	2.45
Paving	1.00	1.05
Totals	7.00	7.00

	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

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

User Input		User Override of Soil Hauling Defaults		Default Values	
Miles/round trip			30		
Round trips/day			0		
Vehicle miles traveled/day (calculated)					0

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.

Worker Commute Emissions		User Override of Worker Commute Default Values		Default Values	
Miles/ one-way trip			20		
One-way trips/day			2		
No. of employees: Grubbing/Land Clearing			3		
No. of employees: Grading/Excavation			6		
No. of employees: Drainage/Utilities/Sub-Grade	10.33		6		
No. of employees: Paving			4		

	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)	0.000	0.000	0.000	0.000	0.000	0.000
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.182	0.249	2.208	0.047	0.020	443.370
Emission rate - Paving (grams/mile)	0.182	0.249	2.208	0.047	0.020	443.370
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)	0.000	0.000	0.000	0.000	0.000	0.000
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.616	0.407	5.187	0.004	0.003	95.481
Emission rate - Paving (grams/trip)	0.616	0.407	5.187	0.004	0.003	95.481
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	0.064	0.077	0.721	0.013	0.005	119.714
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.004	0.005	0.048	0.001	0.000	7.901
Pounds per day - Paving	0.084	0.077	0.721	0.013	0.005	168.543
Tons per const. Period - Paving	0.001	0.001	0.008	0.000	0.000	1.854
tons per construction period	0.005	0.006	0.065	0.001	0.000	9.755

Water truck default values can be overridden in cells C93 through C99 and E91 through E93.

Water Truck Emissions	User Override of Default # Water Trucks		Program Estimate of Number of Water Trucks		User Override of Truck Miles Traveled/Day		Default Values Miles Traveled/Day	
	Default #	Water Trucks	Number of	Water Trucks	Miles Traveled/Day	Miles Traveled/Day	PM10	CO2
Grubbing/Land Clearing - Exhaust	2.00		1		20.00	40	0.00	0.00
Grading/Excavation - Exhaust	2.00		1		20.00	40	0.00	0.00
Drainage/Utilities/Subgrade	1.00		1		20.00	40	0.00	0.00
		ROG		NOx		CO	PM2.5	CO2
Emission rate - Grubbing/Land Clearing (grams/mile)		0.00		0.00		0.00	0.00	0.00
Emission rate - Grading/Excavation (grams/mile)		0.00		0.00		0.00	0.00	0.00
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)		0.28		10.43		1.26	0.18	1713.35
Pounds per day - Grubbing/Land Clearing		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
Pound per day - Grading/Excavation		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
Pound per day - Drainage/Utilities/Subgrade		0.01		0.46		0.06	0.01	75.48
Tons per const. Period - Drainage/Utilities/Subgrade		0.00		0.03		0.00	0.00	4.98

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

Fugitive Dust	User Override of Max Acreage Disturbed/Day		Default Maximum Acreage/Day		PM10		PM2.5	
	Default	Acreage Disturbed/Day	Maximum Acreage/Day	Default	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		1.00		2	10.0	0.3	2.1	0.1

Off-Road Equipment Emissions

Grubbing/Land Clearing Override of Default Number of Vehicles	Default Number of Vehicles Program-estimate	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	CO2 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
		Crawler Tractors	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	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
	1.00	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
	1.00	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	0.0	0.0	0.0	0.0	0.0	0.0
		Grubbing/Land Clearing	0.0	0.0	0.0	0.0	0.0	0.0

Drainage/Utilities/Subgrade Override of Default Number of Vehicles	Default Number of Vehicles Program-estimate	Aerial Lifts	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	CO2 pounds/day
1.00		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
2.00		Air Compressors	0.80	3.47	5.00	0.44	0.41	507.95
1.00		Bore/Drill Rigs	4.36	56.74	63.04	2.14	1.97	14123.38
1.00		Cement and Mortar Mixers	0.07	0.35	0.43	0.02	0.02	57.88
1.00		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
		Cranes	0.79	3.00	9.03	0.41	0.38	601.76
		Crawler Tractors	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
1.00		Excavators	0.45	2.79	5.10	0.25	0.23	572.77
1.00		Forklifts	0.26	0.90	2.17	0.18	0.17	165.47
0.00		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	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
	1	Plate Compactors	0.04	0.21	0.25	0.01	0.01	34.45
		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
		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	0.00
	0	Signal Boards	0.18	0.58	0.57	0.05	0.04	62.97
		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	0.14	1.57	1.34	0.05	0.05	336.13
	1	Trenchers	0.61	2.10	5.16	0.40	0.37	377.07
1.00		Welders	0.68	2.06	1.91	0.17	0.16	204.74
	Drainage	pounds per day	8.4	73.8	94.0	4.1	3.8	17044.6
	Drainage	tons per phase	0.6	4.9	6.2	0.3	0.3	1124.9

Paving	Override of Default Number of Vehicles	Default		Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	CO2 pounds/day
		Number of Vehicles	Program-estimate							
				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
				Crawler Tractors	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
	1.00			Graders	1.12	3.49	10.95	0.61	0.57	672.31
				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	1		Pavers	0.00	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	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
			1	Rollers	0.39	1.51	3.40	0.25	0.23	279.56
				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	0.18	0.58	0.57	0.05	0.04	62.97
				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	0.14	1.57	1.34	0.05	0.05	336.13
				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
				pounds per day	1.8	7.2	16.3	1.0	0.9	1351.0
				tons per phase	0.0	0.1	0.2	0.0	0.0	14.9
				Total Emissions all Phases (tons per construction period) =>	0.6	4.9	6.4	0.3	0.3	1139.8

Equipment default values for horsepower and hours/day can be overridden in cells C289 through C322 and E289 through E322.

Equipment	Default Values Horsepower	Default Values Hours/day
Aerial Lifts	63	8
Air Compressors	106	8
Bore/Drill Rigs	206	8
Cement and Mortar Mixers	500.00	24.00
Concrete/Industrial Saws	10	8
Cranes	64	8
Crawler Tractors	226	8
Crushing/Proc. Equipment	208	8
Excavators	142	8
Forklifts	163	8
Generator Sets	89	8
Graders	66	8
Off-Highway Tractors	175	8
Off-Highway Trucks	123	8
Other Construction Equipment	400	8
Other General Industrial Equipment	172	8
Other Material Handling Equipment	88	8
Pavers	167	8
Paving Equipment	126	8
Plate Compactors	131	8
Pressure Washers	8	8
Pumps	26	8
Rollers	53	8
Rough Terrain Forklifts	81	8
Rubber Tired Dozers	100	8
Rubber Tired Loaders	255	8
Scrapers	200	8
Signal Boards	362	8
Skid Steer Loaders	20	8
Surfacing Equipment	65	8
Sweepers/Scrubbers	254	8
Tractors/Loaders/Backhoes	64	8
Trenchers	98	8
Welders	81	8
	45	8

Road Construction Emissions Model, Version 7.1.2

Emission Estimates for ->										
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	-	-	-	-	-	-	-	-	-	-
Drainage/Utilities/Sub-Grade	8.6	74.4	95.6	14.3	4.3	10.0	6.0	3.9	2.1	17,254.6
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (pounds/day)	8.6	74.4	95.6	14.3	4.3	10.0	6.0	3.9	2.1	17,254.6
Total (tons/construction project)	0.4	3.3	4.2	0.3	0.2	0.2	0.2	0.2	0.0	759.2
Notes: Project Start Year -> 2015										
Project Length (months) -> 4										
Total Project Area (acres) -> 6										
Maximum Area Disturbed/Day (acres) -> 2										
Total Soil Imported/Exported (yd ³ /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 ->										
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	-	-	-	-	-	-	-	-	-	-
Drainage/Utilities/Sub-Grade	3.9	33.8	43.5	6.5	1.9	4.5	2.7	1.8	0.9	7,843.0
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (kilograms/day)	3.9	33.8	43.5	6.5	1.9	4.5	2.7	1.8	0.9	7,843.0
Total (megagrams/construction project)	0.3	3.0	3.8	0.3	0.2	0.1	0.2	0.2	0.0	688.6
Notes: Project Start Year -> 2015										
Project Length (months) -> 4										
Total Project Area (hectares) -> 3										
Maximum Area Disturbed/Day (hectares) -> 1										
Total Soil Imported/Exported (meters ³ /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 7.1.2

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	
Construction Start Year	2015
Project Type	1
Project Construction Time	4.0
Predominant Soil/Site Type: Enter 1, 2, or 3	1
Project Length	0.2
Total Project Area	6.4
Maximum Area Disturbed/Day	2.0
Water Trucks Used?	1
Soil Imported	0.0
Soil Exported	0.0
Average Truck Capacity	20.0

Enter a Year between 2009 and 2025 (inclusive)

1 New Road Construction
2 Road Widening
3 Bridge/Overpass Construction

months

1. Sand Gravel
2. Weathered Rock-Earth
3. Blasted Rock

miles
acres
acres

1. Yes
2. No

yd³/day
yd³/day
yd³ (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		0.40
Grading/Excavation		1.60
Drainage/Utilities/Sub-Grade	4.00	1.40
Paving		0.60
Totals	4.00	4.00

	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

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

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

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

Worker Commute Emissions		User Override of Worker Commute Default Values		Default Values	
Miles/ one-way trip					
One-way trips/day			20		
No. of employees: Grubbing/Land Clearing			2		
No. of employees: Grading/Excavation			3		
No. of employees: Drainage/Utilities/Sub-Grade	12.00		6		
No. of employees: Paving			4		
Emission rate - Grubbing/Land Clearing (grams/mile)		ROG	NOx	CO	CO2
Emission rate - Grading/Excavation (grams/mile)		0.000	0.000	0.000	0.000
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)		0.000	0.000	0.000	0.000
Emission rate - Paving (grams/mile)		0.164	0.219	1.956	443.518
Emission rate - Grubbing/Land Clearing (grams/trip)		0.000	0.000	0.000	0.000
Emission rate - Grading/Excavation (grams/trip)		0.000	0.000	0.000	0.000
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)		0.558	0.363	4.666	95.528
Emission rate - Paving (grams/trip)		0.000	0.000	0.000	0.000
Pounds per day - Grubbing/Land Clearing		0.000	0.000	0.000	0.000
Tons per const. Period - Grub/Land Clear		0.000	0.000	0.000	0.000
Pounds per day - Grading/Excavation		0.000	0.000	0.000	0.000
Tons per const. Period - Grading/Excavation		0.000	0.000	0.000	0.000
Pounds per day - Drainage/Utilities/Sub-Grade		0.058	0.068	0.640	119.754
Tons per const. Period - Drain/Util/Sub-Grade		0.003	0.003	0.028	5.269
Pounds per day - Paving		0.000	0.000	0.000	0.000
Tons per const. Period - Paving		0.000	0.000	0.000	0.000
tons per construction period		0.003	0.003	0.028	5.269

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	PM10
Grubbing/Land Clearing - Exhaust	2.00		1	20.00	40		
Grading/Excavation - Exhaust	1.00		1	20.00	40		
Drainage/Utilities/Subgrade			1	20.00	40		
		ROG		NOX		CO	PM2.5
Emission rate - Grubbing/Land Clearing (grams/mile)		0.00		0.00		0.00	0.00
Emission rate - Grading/Excavation (grams/mile)		0.00		0.00		0.00	0.00
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)		0.25		9.41		1.09	1694.67
Pounds per day - Grubbing/Land Clearing		0.00		0.00		0.00	0.00
Tons per const. Period - Grub/Land Clear		0.00		0.00		0.00	0.00
Pound per day - Grading/Excavation		0.00		0.00		0.00	0.00
Tons per const. Period - Grading/Excavation		0.00		0.00		0.00	0.00
Pound per day - Drainage/Utilities/Subgrade		0.01		0.41		0.05	74.66
Tons per const. Period - Drainage/Utilities/Subgrade		0.00		0.02		0.00	3.28

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

Fugitive Dust	User Override of Max		Default	
	Acreage Disturbed/Day	Maximum Acreage/Day	PM10	PM2.5
Fugitive Dust - Grubbing/Land Clearing		0	0.0	0.0
Fugitive Dust - Grading/Excavation		0	0.0	0.0
Fugitive Dust - Drainage/Utilities/Subgrade	1.00	2	10.0	2.1

Off-Road Equipment Emissions

Grubbing/Land Clearing		Default		Type	ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default	Number of Vehicles	Number of Vehicles	Program-estimate		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
				Crawler Tractors	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
				Rubber Tired Dozers	0.00	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
				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
	1.00			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	0.0	0.0	0.0	0.0	0.0	0.0
				Grubbing/Land Clearing	0.0	0.0	0.0	0.0	0.0	0.0

Grading/Excavation	Override of Default Number of Vehicles	Default		Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	CO2 pounds/day
		Number of Vehicles	Program-estimate							
				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
				Crawler Tractors	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
		1		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
		1		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		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
	1.00			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
	0.00	1		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
	1.00			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
					0.00	0.00	0.00	0.00	0.00	0.00
				Grading/Excavation	0.0	0.0	0.0	0.0	0.0	0.0
				Grading	0.0	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	CO2
		Number of Vehicles	Program-estimate						
				0.00	0.00	0.00	0.00	0.00	0.00
	1.00		Aerial Lifts	0.73	3.43	4.63	0.40	0.37	507.95
	2.00		Bore/Drill Rigs	4.50	56.80	63.10	2.14	1.97	14138.76
	1.00		Cement and Mortar Mixers	0.07	0.35	0.42	0.02	0.02	57.88
			Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
	1.00		Cranes	0.77	3.01	8.75	0.40	0.37	601.78
			Crawler Tractors	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
	1.00		Excavators	0.44	2.79	4.90	0.24	0.22	572.80
	1.00		Forklifts	0.25	0.90	2.09	0.18	0.16	165.47
	0.00		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	1	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
		1	Plate Compactors	0.04	0.21	0.25	0.01	0.01	34.45
			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
			Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	1	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
		0	Signal Boards	0.16	0.56	0.55	0.04	0.04	62.97
			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	0.38	1.58	3.45	0.27	0.25	336.39
		1	Trenchers	0.61	2.10	5.13	0.40	0.37	377.01
	1.00		Welders	0.61	2.00	1.84	0.15	0.14	204.74
				8.6	73.7	95.1	4.3	3.9	17050.2
Drainage			pounds per day	0.4	3.2	4.2	0.2	0.2	750.6
Drainage			tons per phase						

Equipment default values for horsepower and hours/day can be overridden in cells C289 through C322 and E289 through E322.

Equipment	Default Values Horsepower	Default Values Hours/day
Aerial Lifts	63	8
Air Compressors	106	8
Bore/Drill Rigs	206	8
Cement and Mortar Mixers	10	8
Concrete/Industrial Saws	64	8
Cranes	226	8
Crawler Tractors	208	8
Crushing/Proc. Equipment	142	8
Excavators	163	8
Forklifts	89	8
Generator Sets	66	8
Graders	175	8
Off-Highway Tractors	123	8
Off-Highway Trucks	400	8
Other Construction Equipment	172	8
Other General Industrial Equipment	88	8
Other Material Handling Equipment	167	8
Pavers	126	8
Paving Equipment	131	8
Plate Compactors	8	8
Pressure Washers	26	8
Pumps	53	8
Rollers	81	8
Rough Terrain Forklifts	100	8
Rubber Tired Dozers	255	8
Rubber Tired Loaders	200	8
Scrapers	362	8
Signal Boards	20	8
Skid Steer Loaders	65	8
Surfacing Equipment	254	8
Sweepers/Scrubbers	64	8
Tractors/Loaders/Backhoes	98	8
Trenchers	81	8
Welders	45	8



Appendix D. Engineering Evaluation

Available Upon Request at District Office:

San Joaquin Valley Air Pollution Control District
Southern Region
34946 Flyover Court
Bakersfield, CA 93308
(661) 392-5500



Appendix E. Risk Management Review

Available Upon Request at District Office:

San Joaquin Valley Air Pollution Control District
Central Region
1990 E. Gettysburg Avenue
Fresno, CA 93726
(559) 230-6000



Appendix F. Reconnaissance-Level Biological Survey

ROBERT A. BOOHER CONSULTING
Environmental Planning & Management
3221 Quail Hollow Drive
Fairfield, California 94534
Telephone (707) 399-7835

December 6, 2012

Mr. Jim Robinson
Vintage Production California, LLC.
9600 Ming Avenue, Suite 300
Bakersfield, California 93311

RE: Reconnaissance-Level Biological Survey Results
Vintage Production California, LLC. Lost Hills Steam Generation Facilities Project

Dear Mr. Robinson,

Vintage Production California, LLC. (Vintage) proposes to construct three (3) steam generation facilities within the boundaries of the designated Lost Hills Oil Field in Kern County of California. The location of the proposed project sites are as follows:

- North Steam Generation Facility Alternative # 1 - Section 34, Township 25 South, Range 20 East, in the Antelope Plain USGS 7.5-minute quadrangle
- North Steam Generation Facility Alternative # 2 - Section 34, Township 25 South, Range 20 East, in the Antelope Plain USGS 7.5-minute quadrangle
- Central Steam Generation Facility - Section 2, Township 26 South, Range 20 East, in the Antelope Plain USGS 7.5-minute quadrangle
- South Steam Generation Facility - Section 11, Township 26 South, Range 20 East, in the Antelope Plain USGS 7.5-minute quadrangle

The proposed project sites are depicted on the attached Project Location Map (see Figure 1). In the case of the proposed North Steam Generation Facility, two (2) alternatives were surveyed, but only one (1) of the locations will be utilized. The South Steam Generation Facility measures approximately 330 feet (east to west) by 550 feet (north to south), or 4.17 acres in size. The Central Steam Generation Facility measures approximately 140 feet (east to west) by 200 feet (north to south), or 0.64 acres in size. The North Steam Generation Facility Alternative # 1 measures approximately 800 feet (east to west) by 350 feet (north to south), or 6.43 acres in size. The North Steam Generation Facility Alternative # 2 measures approximately 500 feet (east to west) by 500 feet (north to south), or 5.74 acres in size. Vintage retained the services of Robert A. Booher Consulting (RAB Consulting) to conduct a reconnaissance-level biological survey of the proposed project sites and a 500-foot buffer area around the proposed project sites.

On December 3, 2012, RAB Consulting conducted the requested surveys over the proposed project sites and a 500-foot buffer area around the proposed project sites. The surveys were conducted to identify special-status plant and wildlife species including sign i.e., nests, dens, burrows, scat, tracks, prey remains, etc. of special-status wildlife species including, but not limited to, San Joaquin antelope squirrel

(*Ammospermophilus nelsoni*), San Joaquin kit fox (*Vulpes macrotis mutica*), Western burrowing owl (*Athene cunicularia*), giant kangaroo rat (*Dipodomys ingens*), and blunt-nosed leopard lizard (*Gambelia sila*). This report presents the results of the reconnaissance-level biological surveys.

The proposed South Steam Generation Facility project site is located in an active oilfield setting. The project site is disturbed and contained no vegetation at the time of our biological survey on December 4, 2012. The proposed project site is located immediately adjacent to existing oilfield access roads to the south and east. As such, no new access roads will be required for the proposed project. The site is accessed by traveling 0.88 miles northeast, east, and southeast on existing oilfield access roads from Holloway Road (see Figure 1).

The proposed Central Steam Generation Facility project site is located in an active oilfield setting. The project site is disturbed and contained no vegetation at the time of our biological survey on December 4, 2012. The proposed project site is located immediately adjacent to existing oilfield access roads to the north. As such, no new access roads will be required for the proposed project. The site is accessed by traveling 1.62 miles northeast, north, and west on existing oilfield access roads from Holloway Road (see Figure 1).

The proposed North Steam Generation Facility Alternative # 1 project site is located in an active oilfield setting. The project site is disturbed and contained very little ruderal vegetation on the western 1/3 of the project site at the time of our biological survey on December 4, 2012. The proposed project site is located immediately adjacent to existing oilfield access roads to the south and east. As such, no new access roads will be required for the proposed project. The site is accessed by traveling 2.44 miles northeast, north, and west on existing oilfield access roads from Holloway Road (see Figure 1).

The proposed North Steam Generation Facility Alternative # 2 project site is located in an active oilfield setting. The project site is disturbed and contains no vegetation at the time of our biological survey on December 4, 2012. The proposed project site is located immediately adjacent to existing oilfield access roads to the south and east. As such, no new access roads will be required for the proposed project. The site is accessed by traveling 2.78 miles northeast, north, and west on existing oilfield access roads from Holloway Road (see Figure 1).

Prior to the reconnaissance-level biological surveys of the project area, a query of the California Natural Diversity Database (CNDDDB 2012) was conducted to identify the historical observations of threatened and endangered plant and animal species in the vicinity of the proposed project. As illustrated in Figure 2, several listed species have been recorded in the proximity of the proposed project sites including San Joaquin kit fox, blunt-nosed leopard lizard, San Joaquin antelope squirrel, San Joaquin pocket mouse (*Perognathus inornatus*), and San Joaquin whipsnake (*Masticophis flagellum ruddocki*). However, as detailed below, no observations were made within 0.2 miles of the proposed project sites. Additionally, no observation has been recorded since 2004.

The closest sighting of San Joaquin kit fox to a proposed project sites is in the immediate vicinity of the proposed Central Steam Generation Facility and the proposed North Steam Generation Facility Alternative # 1. This CNDDDB observance record dates from 2004 and the observation point was located in non-native annual grassland habitat. The observation point is now an active oil field and contains no vegetative coverage. The closest sighting of blunt-nosed leopard lizard to the proposed project sites is in the immediate vicinity of the proposed Central Steam Generation Facility. This CNDDDB observance record dates from 1981 and the observation point was vegetated by non-native annual grassland habitat. The observation point is now utilized for intensive agriculture, and no native habitat remains. The closest sighting of San Joaquin antelope squirrel to the proposed project sites is approximately 0.2 miles to the

south of the proposed South Steam Generation Facility project site. This CNDDDB observance record dates from 1962 and the observation point was vegetated by non-native annual grassland habitat with scattered saltbush shrubs. The observation point is still vegetated by this native habitat. The closest sighting of San Joaquin pocket mouse to the proposed project sites is approximately 1.2 miles to the northeast of the proposed North Steam Generation Facility Alternative # 2 project site. This CNDDDB observance record dates from 2004 and the observation point was vegetated with by non-native annual grassland habitat. The observation point is now utilized for intensive agriculture, and no native habitat remains. The closest sighting of San Joaquin whipsnake to the proposed project sites is approximately 1.2 miles to the northeast of the proposed South Steam Generation Facility project site. This CNDDDB observance record dates from 1999 and the observation point was vegetated by non-native annual grassland habitat with saltbush shrubs. The observation point is still vegetated by this native habitat.

The proposed South Steam Generation Facility project site is located in an active oilfield setting. The project site is disturbed and contained no vegetation at the time of our biological survey on December 4, 2012. The proposed project site is located immediately adjacent to existing oilfield access roads to the south and east. Existing oilfield infrastructure is found to the north, south, east, and west of the proposed project site, and no vegetation was observed in the buffer area of this project site.

The proposed Central Steam Generation Facility project site is located in an active oilfield setting. The project site is disturbed and contained no vegetation at the time of our biological survey on December 4, 2012. The proposed project site is located immediately adjacent to existing oilfield access roads to the north. Existing oilfield infrastructure is found to the north, south, east, and west of the proposed project site, and no vegetation was observed in the buffer area of this project site.

The proposed North Steam Generation Facility Alternative # 1 project site is located in an active oilfield setting. The project site is disturbed and contained very little ruderal vegetation on the western 1/3 of the project site at the time of our biological survey on December 4, 2012. The proposed project site is located immediately adjacent to existing oilfield access roads to the south and east. Existing oilfield infrastructure is found to the north, south, east, and west of the proposed project site, and no vegetation was observed in the buffer area of this project site with the exception of areas to the west and south of the project site, which were vegetated with scattered ruderal vegetation.

The proposed North Steam Generation Facility Alternative # 2 project site is located in an active oilfield setting. The project site is disturbed and contains no vegetation at the time of our biological survey on December 4, 2012. The proposed project site is used for the storage of pipe and other equipment used in the oil field. The proposed project site is located immediately adjacent to existing oilfield access roads to the south and east. Existing oilfield infrastructure is found to the east of the proposed project site, and ruderal vegetation was observed in the buffer area of this project site with the exception of areas to the east of the project site, which was disturbed and contained no vegetation. Buffer areas to the north, south, and west of the project site appear to have been plowed in the past, and have set idle for an extended amount of time.

Summary of Survey Results

No special-status wildlife species or signs of their presence (i.e., nests, dens, burrows, scat, tracks, prey remains, etc.) were observed within the boundaries of the proposed project sites. No burrows or dens that support special-status wildlife species were observed within the boundaries of the proposed project sites. No special-status wildlife species or signs of their presence (i.e., nests, dens, burrows, scat, tracks, prey remains, etc.) were observed in the buffer areas of the proposed project sites with the exception of

scattered small mammal burrows that could support special-status small mammal species and blunt-nosed leopard lizards in the buffer area of the proposed North Steam Generation facility Alternate # 2. No formal surveys utilizing agency approved survey methodologies were conducted as part of biological surveys.

CNDDDB records suggest that the general area surrounding the proposed project sites previously supported San Joaquin kit fox. However, it is still possible that the proposed project sites may accommodate the occasional transient foraging kit fox. No sign (scat, tracks, dens, prey remains etc.) of San Joaquin kit fox were observed in the project area. A list of plant and animal species observed within the project area is presented below in Table 1.

Table 1
List of Animal and Plant Species Observed within Biological Survey Area

Scientific name	Common name
Animals	
<i>Corvus corax</i>	common raven
<i>Lepus californicus</i>	black-tailed jackrabbit
<i>Zenaida macroura</i>	mourning dove
Plants	
<i>Amsinkia menziesii var. intermedia</i>	fiddleneck
<i>Atriplex polycarpa</i>	saltbush
<i>Avena barbata</i>	slender wild oat
<i>Brassica nigra</i>	black mustard
<i>Bromus diandrus</i>	ripgut brome
<i>Bromus madritensis ssp. rubens</i>	red brome
<i>Erodium botrys</i>	broadleaf filaree
<i>Erodium cicutarium</i>	redstem filaree
<i>Lactuca serriola</i>	wire lettuce
<i>Malva neglecta</i> Wallr.	common mallow
<i>Salsola tragus</i>	Russian thistle
<i>Sonchus asper</i>	sow thistle

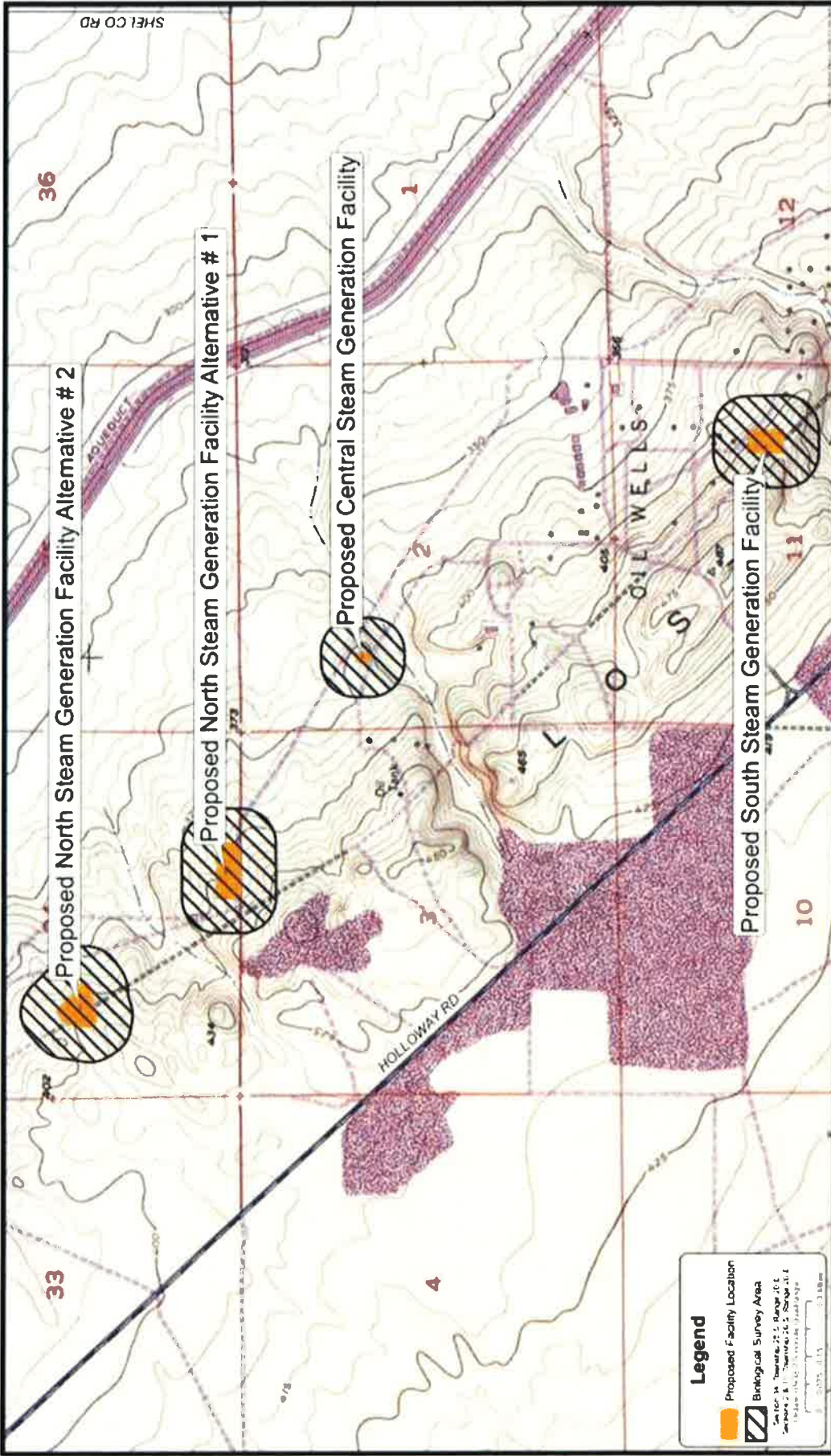
If you have any questions or require any additional information, please call me at (707) 399-7835.

Sincerely,
Robert A. Booher Consulting



Robert A. Booher
Principal Environmental Scientist

Figures



Legend

- Proposed Facility Location
- Biological Survey Area

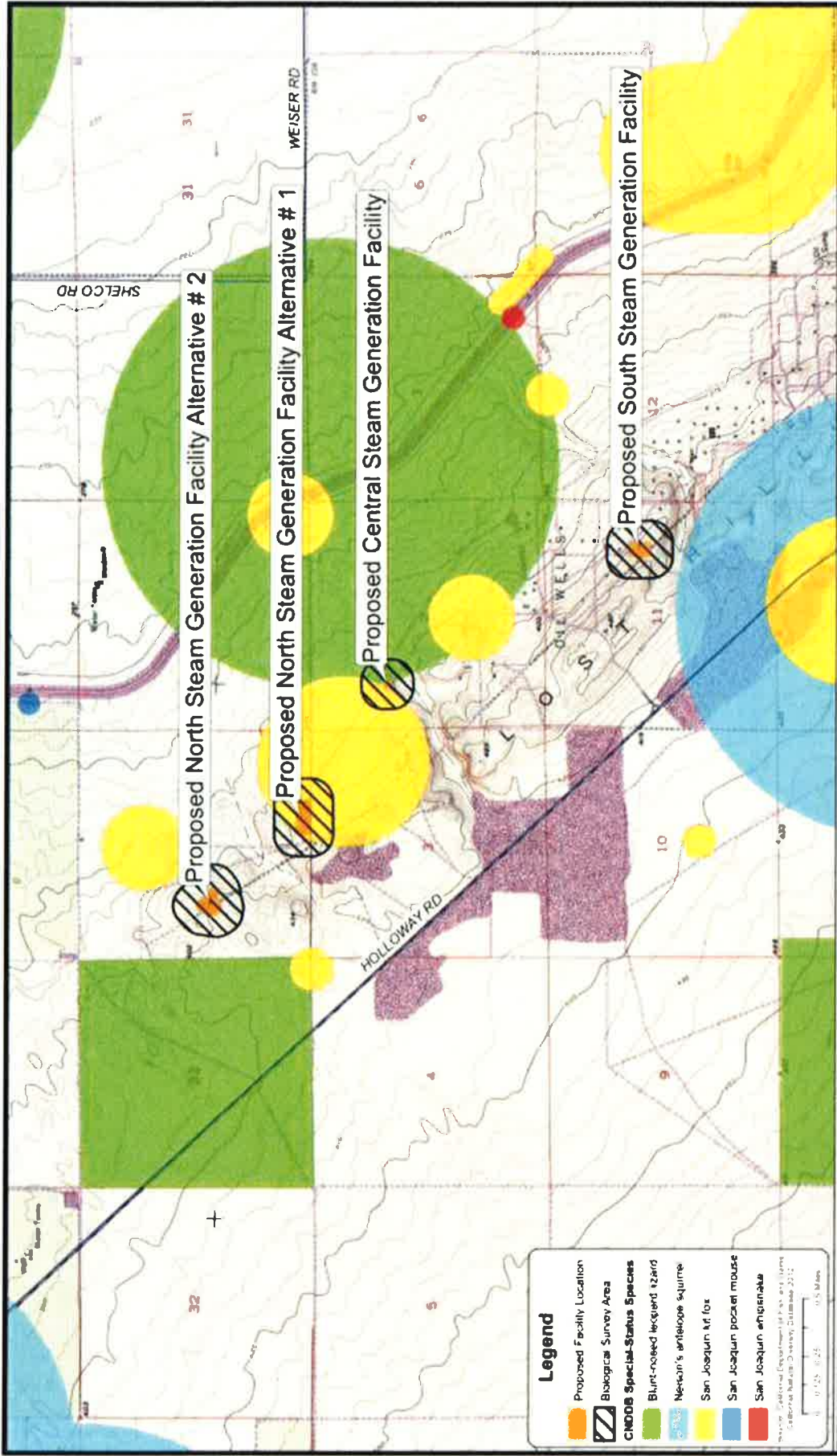
Section 14, Township 25 S, Range 26 E
 Section 2, 8, 11, Township 26 S, Range 26 E
 (Scale: 1:50,000)

Robert A. Brooker Consulting
 Environmental Planning & Management
 3221 Quail Hollow Drive
 Fairfax, California 94534
 Telephone (925) 396-7336

Whisper Production California LLC
 8000 May Avenue, Suite 200
 Berkeley, California 94703
 Telephone (925) 412-5217

PROPOSED STEAM GENERATOR FACILITIES
Figure 1 - Project Location Map





Legend

- Proposed Facility Location
- Biological Survey Area
- CNDDB Special-Status Species
- Blunt-nosed leopard lizard
- Newton's antelope squirrel
- San Joaquin kit fox
- San Joaquin pocket mouse
- San Joaquin antelope

Scale: 0 0.25 0.5 Miles

Robert A. Beecher Consulting
 Environmental Planning & Management
 3211 Quail Hollow Drive
 Fairfield, California 94534
 Telephone (707) 998-7839

PROPOSED STEAM GENERATOR FACILITIES
Figure 2 - CNDDB Sensitive Species Occurrences

Veritage Production California LLC
 8900 Ming Avenue, Suite 200
 Redwood City, California 94061
 Telephone (650) 413-0217



Attachment A
Representative Photographs



Photograph 1
View to the east from the western edge of proposed North Steam Generation
Facility Alternative # 1 location.



Photograph 2
View to the east from the western edge of proposed North Steam Generation
Facility Alternative # 2 location.



Photograph 3

View to the south from the northern edge of proposed Central Steam Generation Facility location.



Photograph 4

View to the north from the southern edge of proposed South Steam Generation Facility location.



Appendix G. Comments Received and District Responses

Response to Comments Received for the Lost Hills Oil Field Expansion Project Project No. S-1123645

The San Joaquin Valley Air Pollution Control District (District) provided a Notice of Intent to adopt a Mitigated Negative Declaration for the installation and operation of nine (9) new field gas/natural gas-fired steam generators within Vintage Production Company's Heavy Oil Western Stationary Source in the Lost Hills Oil Field, Kern County, California. The Initial Study and Draft Mitigated Negative Declaration document was noticed in the Bakersfield Californian and made available for public review from March 30, 2013 through April 29, 2013. The document was also submitted to the State Clearinghouse for distribution and was made available from April 2, 2013 through May 1, 2013.

The following parties provided written comments on the Initial Study and Draft Mitigated Negative Declaration:

- Native American Heritage Commission; and
- California Department of Fish and Wildlife.

All comments were duly considered and addressed in preparation of the Final Mitigated Negative Declaration (MND). A copy of the comment letters are incorporated into this document as Attachment 1 and Attachment 2. A summary of the comments received and the District's responses follow below.

Native American Heritage Commission (NAHC)

Comment 1: The commenter identifies the role of the NAHC over affected Native American resources. The commenter discusses CEQA requirements for determining potential impacts on historical and archaeological resources and the CEQA requirement for preparation of an Environmental Impact Report if impacts are significant.

Response 1: This comment is informational only. No further discussion required.

Comment 2: The commenter recommends that the appropriate Information Center be contacted to determine if the project area has been previously surveyed for cultural places. The commenter also recommends that any known traditional cultural resources be listed in the environmental document.



Response 2: As discussed in the MND, the District queried state and federal registers for historical resources and found there were no registered historical resources in or around the project area. The District understands that historic and archaeological resources may be considered as protected under state and federal statute and, therefore, not included in state and federal registers. As such, the District included Mitigation Measures CUL-1 and CUL-2, which specifically require compliance with existing regulations, to mitigate potential impacts. However, to ensure the project will not have a significant impact on known cultural resources, Mitigation Measure CUL-3 has been added to the Final MND and Mitigation Monitoring and Reporting Program (MMRP) and will be made a condition of project approval. Compliance with the measure below will be made a condition of project approval and included as a condition in the ATC permit.

CUL-3: Prior to the start of construction activities, Permittee shall contact the appropriate Information Center to determine if all or part of the Area of Project Effect (APE) has been surveyed for cultural places. Inquiries should be submitted to the Information Center at the following address:

*Dr. Brian Hemphill, Coordinator
Attn: Celeste Thomson
Southern San Joaquin Valley Information Center
California State University, Bakersfield
9001 Stockdale Highway (46MEC)
Bakersfield, CA 93311*

Comment 3: The commenter recommends the preparation of a detailed report in the event that additional archaeological inventory is necessary. The commenter identifies the information to be included in the report and to whom the report is to be submitted. The commenter provides guidance on what information in the report is considered as confidential and not to be made available for public disclosure. The commenter indicates that the NACH has been contacted regarding a Sacred Lands File Search and provides a list of Native American contacts for consultation regarding potential impacts on cultural resources. The commenter notes that the lack of surface evidence of archaeological resources does not preclude their existence.

Response 3: As discussed in the MND, the District recognized the possibility of unearthing archaeological resources and human remains during construction activities and incorporated Mitigation Measures CUL-1 and CUL-2 to address the uncertainty of precluding the existence of archaeological resources. However, to ensure the project will not have a significant impact on known cultural resources, Mitigation Measures CUL-4 and CUL-5 have been added to the Final MND and MMRP. Compliance with the measures below will be made a condition of project approval and included as a condition in the ATC permit.



CUL-4: If additional archaeological inventory is required, Permittee shall notify the District and shall coordinate with the NAHC in the preparation of a professional report detailing the findings and recommendations of the records search and field survey. Permittee shall provide the Kern County Planning Department the final report containing site forms, and detailing site significance and mitigation measures. All information regarding site locations, Native American human remains, and associated funerary objects will be in a separate confidential addendum and not made available for public disclosure. [Public Resources Code 21000-21177: California Environmental Quality Act]

CUL-5: Prior to the start of construction activities, Permittee shall contact the Native American Contacts identified in the Sacred Lands File Check to determine if the project may impact any cultural resources. [Public Resources Code 21000-21177: California Environmental Quality Act]

*Kawaiisu Tribe of Tejon Reservation
David Laughinghorse Robinson
P.O. Box 1547
Kernville, CA 93238*

*Kern Valley Indian Council
Robert Robinson, Co-Chairperson
P.O. Box 401
Weldon, CA 93283
Phone: (760) 549-2131*

*Kitanemuk & Yowlumne Tejon Indians
Delia Dominguez, Chairperson
115 Radio Street
Bakersfield, CA 93305
Phone (626) 339-6785*

*Santa Rosa Rancheria
Rueben Barrios Sr., Chairperson
P.O. Box 8
Lemoore, CA 93245
Phone: (559) 924-1278*

*Santa Rosa Tachi Rancheria
Lalo Franco, Cultural Coordinator
P.O. Box 8
Lemoore, CA 93245*



Phone (559) 924-1278 ext. 5

*Tejon Indian Tribe
Katherine Montes Morgan, Chairperson
1731 Hasti-Acres Drive, Suite 108
Bakersfield, CA 93309
Phone: (661) 758-2303*

*Tubatulabals of Kern Valley
Robert L. Gomez, Jr., Tribal Chairperson
P.O. Box 226
Lake Isabella, CA 93240
Phone: (760) 379-4590*

*Tule River Indian Tribe
Neil Peyron, Chairperson
P.O. Box 589
Porterville, CA 93258
Phone: (559) 781-4271*

*Wuksache Indian Tribe/Eshom Valley Band
Kenneth Woodrow, Chairperson
1179 Rock Haven Court
Salinas, CA 93906
Phone (831) 443-9702*

*Ron Wermuth
P.O. Box 168
Kernville, CA 93238
Phone: (760) 376-4240*

Comment 4: The commenter cites various state and federal codes relating to consultation with Native American consulting parties during construction activities. The commenter also provides guidance for mitigation in case of accidental discovery of archaeological resources and human remains.

Response 4: As discussed in the MND, the District recognized the possibility of unearthing archaeological resources and human remains during construction activities and incorporated Mitigation Measures CUL-1 and CUL-2 to address the uncertainty of precluding the existence of archaeological resources. These measures require compliance with all NAHC requirements, Health and Safety codes, and Public Resources codes in the event of accidental discovery. Furthermore, Mitigation Measures CUL-3 through CUL-5 have been added to the Final MND and MMRP to ensure the project would have a less than significant impact on cultural resources.



Compliance with all mitigation measures will be made a condition of project approval and included as a condition in the ATC permit. No further action is required.

California Department of Fish and Wildlife (CDFW)

Comment 1: The CDFW has reviewed the Draft MND and requests the District's consideration of their comments regarding potential impacts on biological resources and recommendations for additional mitigation.

Response 1: The District has considered all comments and has incorporated the recommended mitigation measures into the project and MMRP as discussed below.

Comment 2: The project area has appropriate habitat for nesting, denning, and foraging opportunities for State and Federal listed species: Blunt-nosed leopard lizard, San Joaquin kit fox, San Joaquin antelope squirrel, and giant kangaroo rat. As such, CDFW has concerns regarding the potential for the project to impact the identified species and recommends the preparation of focused biological surveys to be conducted by qualified wildlife biologists during the appropriate survey periods and prior to any ground disturbing activities. CDFW also recommends that a biological monitor be present throughout project construction. Finally, CDFW recommends that the above recommendations be included as enforceable mitigation measures.

Response 2: As discussed in the MND, the District required the implementation of Mitigation Measure BIO-1 to ensure pre-construction surveys are completed in accordance to all CDFW and USFWS requirements. Mitigation Measure BIO-1 has been amended to specify that a wildlife biologist will be required to conduct the surveys.

BIO-1: A Qualified Wildlife Biologist will conduct a focused pre-construction survey to determine the presence/absence of suitable habitat for sensitive species as well as the potential for impacts to these sensitive species prior to the onset of ground disturbance. The survey shall be conducted in accordance with the standard protocol of the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW). If more than 30 days pass before the onset of ground disturbance, an additional survey shall be conducted by a Qualified Wildlife Biologist within 30 days prior to the onset of ground disturbance.

Mitigation Measure BIO-17, which requires additional focused biological surveys for identified special status species, has been added to the Final MND and MMRP. Compliance with the measure below will be made a condition of project approval and included as a condition in the ATC permit.

BIO-17: If habitat for, and/or the presence of sensitive species are documented in the pre-construction surveys, additional focused biological surveys will be



conducted by a Qualified Wildlife Biologist for the appropriate survey periods as identified in the CDFW and USFWS protocols identified below. [Public Resources Code 21000-21177: California Environmental Quality Act]

- Blunt-nosed leopard lizard – Approved Survey Methodology for the Blunt-nosed Leopard Lizard (CDFG, 2004)
- San Joaquin kit fox – Standardized Recommendation for Protection of the San Joaquin Kit Fox Prior To or During Ground Disturbance (USFWS, 2011)
- Burrowing owl – Staff Report on Burrowing Owl Mitigation dated March 7, 2012 (CDFG, 2012)

As discussed in the MND, the applicant implements a Biological Awareness training program for its staff and selected contractor representatives. This training includes the identification of special status species and how to identify their presence. To ensure continuous monitoring of the project sites, Mitigation Measure BIO-18, which requires an employee trained in the identification of special status species to be on-site during construction activities, has been added to the Final MND and MMRP. Compliance with the measure below will be made a condition of project approval and included as a condition in the ATC permit. Furthermore, the trained employee will be required to report any findings to the Company representative working with the USFWS as identified in Mitigation Measure BIO-10.

BIO-18: Permittee shall retain at least one staff or contractor representative that has successfully completed the applicant's Biological Awareness training program on-site during all ground disturbing activities and project construction. In the event that special status species are discovered on or near the project site, said staff/contractor shall immediately contact the Company's biological representative identified in the biological training.

Comment 3: This comment provides a discussion regarding the various roles of the CDFW under CEQA regulation and their jurisdictional responsibilities for biological species under both state and federal regulation. As the definition of "take" is more stringently defined under the Federal Endangered Species Act, it is recommended that the USFWS be consulted well in advance of site development and project implementation.

Response 3: The discussion regarding the CDFW's roles and jurisdiction was informational in nature. As discussed in the MND, the applicant implements a Biological Awareness training program for its staff and selected contractor representatives, as well as consulting with qualified biological contractors. The Company also practices avoidance measures such as pre-construction surveys to avoid take of any sensitive species. As such, the applicant actively cooperates with the USFWS to ensure all project are compliant will all USFWS requirements.



Comment 4: Blunt-nosed leopard lizard (BNLL) is known to occur in the vicinity of the project sites. BNLL habitat also includes areas of grassland and shrub scrub habitat that contains required habitat elements, such as small mammal burrows. BNLL are also known to utilize open space patches between suitable habitats including disturbed sites and unpaved access roadways. Because BNLL is fully protected no "take", incidental or otherwise, can be authorized by the CDFW. To assure CDFW that "take" will not occur as a result of project implementation, CDFW requires surveys to be conducted in all areas suitable to the BNLL pursuant to the protocol survey methods identified in the *Approved Survey Methodology for the Blunt-nosed Leopard Lizard* (CDFG, 2004). CDFW advises that any potential burrows which could be occupied by BNLL and all individuals observed to be above ground should be avoided by a minimum 50 feet; that an appropriate number of qualified biologists be present during all ground-disturbing activities to ensure that BNLL above ground are not impacted; and that any individual that may enter an area of project activity be allowed to leave unobstructed on its own. CDFW offers guidance on how to address avoidance through the implementation a biological monitor to guide heavy equipment onto the site, exclusion fencing, and reduced speed limits to assist drivers in visually noting when an animal may be moving into or off of the roadway.

Response 4: A reconnaissance-level biological survey was performed in December 2012. Although no BNLL were observed, small mammal burrows which could support BNLL observed within the 500-foot buffer area. Mitigation Measure BIO-17, discussed above, has been incorporated into the project to ensure compliance with the survey protocol identified in the *Approved Survey Methodology for the Blunt-nosed Leopard Lizard* (CDFG, 2004). Mitigation Measure BIO-18, also discussed above, has been incorporated into the project to ensure that a qualified employee will monitor the sites during all construction activities. Additionally, to ensure the project will not result in take of the BNLL, the following mitigation measures have been added to the Final MND and MMRP. Compliance with the measures below will be made a condition of project approval and included as a condition in the ATC permit.

BIO19: Blunt-nosed leopard lizard surveys following current CDFG guidelines shall be completed no more than one year prior to initiation of project if construction activities will impact potential habitat for the species. Potential habitat includes areas that have not been previously disturbed or that have recovered to support vegetation and small mammal burrows that represent potential shelter for blunt-nosed leopard lizard. If at any time blunt-nosed leopard lizards are observed during these surveys, no disturbance of areas that could be occupied by this species should occur within 500 feet of the observation without prior approval from CDFG and USFWS.



- BIO-20: The limits of project site grading shall be clearly delineated prior to construction activities by posting stakes, flags and/or rope or cord, as necessary.
- BIO-21: Traffic restraints and signs shall be established and issued to minimize temporary disturbances. All project-related vehicle traffic shall be restricted to established roads, designated access roads and routes, project site, storage areas, and staging and parking areas. Off-road traffic outside designated project boundaries shall be prohibited.
- BIO-22: All equipment storage and parking during project activities shall be confined to the designated construction area or to previously disturbed offsite areas that are not habitat for listed species.

Comment 5: The shrubs and grasses within and in the project vicinity likely provide nesting habitat for songbirds and raptors. CDFW provides guidance for preparation of survey for active nests and recommends a minimum no-disturbance buffer distance around active and migratory bird species until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival.

Response 5: Mitigation Measures BIO-23 and BIO-24 have been added to the Final MND and MMRP. Compliance with the measures below will be made a condition of project approval and included as a condition in the ATC permit.

- BIO-23: If vegetation clearing is conducted between February and mid-September, a survey targeting identification of nesting birds shall be conducted. This survey may be conducted in conjunction with the pre-activity survey. If any nesting birds covered by the Migratory Bird Treaty Act are identified, nests shall be avoided by an appropriate distance such that nesting activities are not interrupted until the young have fledged. Determination of when young have fledged from active nests will be determined by a qualified biologist. If any nesting birds are found during vegetation clearing activities, a qualified biologist shall be contacted to determine appropriate avoidance measures. If any burrowing owl burrows are observed, avoidance measures should be consistent with those included in "Staff Report on Burrowing Owl Mitigation," CDFG (2012) taking into account existing disturbances such as roads and structures. Absolutely no disturbance to active nests shall occur without a permit pursuant to the Migratory Bird Treaty Act. For nesting sites, based on the level of disturbance, the following buffer distances shall apply and be adequately delineated around active nests.
- April 1 – Aug 15: low disturbance, 200 meters; medium disturbance, 500 m; and high disturbance, 500 m.
-



-
- Aug 16 – Oct 15: low disturbance, 200 meters; medium disturbance, 200 m; and high disturbance, 500 m.
 - Oct 16 – Mar 31: low disturbance, 50 meters; medium disturbance, 100 m; and high disturbance, 500 m.

BIO-24: All power poles and electrical facilities should be designed to minimize the potential for electrocution of migratory and resident birds, including consideration of birds with a wingspan of up to 9 feet.

Comment 6: Burrowing owl has the potential to be present on and adjacent to the project sites and dispersing juveniles, migrants, transients, or new colonizers can utilize the project sites year round. CDFW recommends that surveys should be conducted following the survey methodology in the *Staff Report on Burrowing Owl Mitigation dated March 7, 2012* (CDFG, 2012). CDFW recommends that impacts to occupied burrows be avoided using specified buffer differences unless a qualified biologist verifies that the birds have not begun egg laying and incubation or that juveniles are foraging independently and are capable of independent survival. CDFW notes that failure to implement the recommended buffer zones could cause adult burrowing owls to abandon the nest, cause eggs or young to be directly impacted (crushed), and/or result in reproductive failure, in violation of Fish and Game Code and the Migratory Bird Treaty Act. CDFW also makes recommendations for mitigating potential impacts to owls present in the project site including the relocation of birds during non-breeding season and replacement of burrows with artificial burrows.

Response 6: Mitigation Measure BIO-23, which provides for implementing avoidance measures consistent with the CDFG staff report, has been added to the Final MND and MMRP. Compliance with that measure will be made a condition of project approval and included as a condition in the ATC permit.

Comment 7: San Joaquin kit fox (SJKF) are known to occur adjacent to the project site. SJKF are known to den in right-of-ways, vacant lots, etc., and populations fluctuate over the years. SJKF may be attracted to the project area due to the type and level of activity occurring and the loose, friable soils that are created during ground disturbance. CDFW recommends surveys be conducted prior to ground disturbing activities using the recommendations established in the *Standardized Recommendation for Protection of the San Joaquin Kit Fox Prior To or During Ground Disturbance* (USFWS, 2011). CDFW also recommends the inclusion of mitigation measures in the event that SJKF are identified in the pre-construction surveys. Finally, CDFW recommends these measures be made enforceable conditions in the CEQA document.

Response 7: Mitigation Measures BIO-3 through BIO-16 have already incorporated the recommendations for construction and on-going operation requirements identified in the *Standardized Recommendation for Protection of the San Joaquin Kit Fox Prior To or During Ground Disturbance* (USFWS, 2011). Mitigation Measures BIO-25 and BIO-26



have been added to the Final MND and MMRP to address additional recommendations identified in the USFWS document. Compliance with the measures below will be made a condition of project approval and included as a condition in the ATC permit.

BIO-25: To reduce potential impacts to the San Joaquin kit fox, Permittee shall implement the following avoidance measures:

- For San Joaquin kit fox dens within 200 feet of the construction area, avoidance zones shall be identified by wooden or metal stakes connected by flagging or by other similar fencing material. Each avoidance zone shall have the following distance measured outward from the den or burrow entrances or the edge of the plant population.
 - ❖ Potential den: 50 ft
 - ❖ Atypical den: 50 ft
 - ❖ Known den: 100 ft
 - ❖ Natal/pupping den (occupied and unoccupied): Contact CDFW
 - ❖ San Joaquin antelope squirrel: 50 ft
 - Potential kit fox dens shall be monitored until they can be shown to be unoccupied based on the procedures outlined in *Standardized Recommendation for Protection of the San Joaquin Kit Fox Prior To or During Ground Disturbance* (USFWS, 2011), and then covered with plywood that is firmly secured to prevent access by kit foxes during project activities. The covers shall not be installed more than 14 days prior to the start of construction. The covers shall remain in place for the duration of construction, after which time they shall be removed.
 - If avoidance of any potential kit fox den within the project site is not practicable, and the den may be unavoidably damaged or destroyed by project actions, the following procedure shall be implemented: Prior to surface-disturbing activities, any such potential kit fox den shall be completely excavated and then backfilled to preclude later use by kit foxes during the construction period. If, at any time during monitoring or excavation, any sign that the den may be or has been occupied is found, the den's status changes to "known".
 - Potential kit fox dens may be excavated provided that the following conditions are satisfied: (1) the den classification is determined by a qualified wildlife biologist; and (2) the excavation is conducted by or under the direct supervision of a qualified wildlife biologist.
-



BIO-26: To reduce potential impacts to the San Joaquin kit fox, antelope squirrel and giant kangaroo rat, Permittee shall implement the following avoidance measures:

- If dens or nest burrows are located outside of the construction area but within the avoidance zone designated for the resource type (listed above), the boundary of the avoidance zone shall be drawn to include all areas within the radius stated above, except those falling within the construction area. If the construction area encroaches on an avoidance area, potential dens shall not be excavated unless a qualified biologist determines that excavation is absolutely necessary.
- Avoidance zones shall be maintained until all construction activities have been completed, and then shall be removed by a qualified biologist.
- Dens identified by a qualified biologist as either a “known” den or as a “suspected” pupping den shall not be excavated unless the appropriate California Endangered Species Act (CESA) and Federal Endangered Species Act permits authorized such excavations. In addition, any occupied natal or pupping dens cannot be destroyed until the pups and adults have vacated.

Comment 8: A reconnaissance-level biological survey was performed in December 2012 which identified scattered small animal burrows were identified in the 500-foot buffer area. CDFW notes that Nelson’s antelope squirrel and giant kangaroo rat (GKR) could be present and potentially impacted during construction activities. CDFW also notes that GKR have been recorded in many new locations in the past year. CDFW offers recommendations for a minimum no-disturbance buffer distance, the use of biological monitors during ground disturbing activities, issuance of incidental Take Permits. CDFW recommends these avoidance, minimization and mitigation measures be made enforceable conditions in the CEQA document.

Response 8: Mitigation Measure BIO-26, discussed above, has been added to the Final MND and MMRP to address CDFW recommendations for mitigating impacts on listed rodent species. Additionally, Mitigation Measure BIO-27 has also been added to the Final MND and MMRP and compliance with the measure will be made a condition of project approval and included as a condition in the ATC permit.

BIO-27: To reduce potential impacts to Nelson’s antelope squirrel and the giant kangaroo rat, Permittee shall implement the following avoidance measures:

- For burrows within 200 feet of the construction area, avoidance zones shall be identified by wooden or metal stakes connected by flagging or by other similar fencing material. Each avoidance zone shall be a
-



minimum of 50 ft outward from the den or burrow entrances or the edge of the plant population.

- If burrows cannot be avoided, no project activities shall occur until the appropriate CESA permit has been issued by CDFW. The following measures are required to minimize and mitigate for impacts to antelope squirrel and the giant kangaroo rat:
 - ❖ Burrows will be avoided to the maximum extent practicable.
 - ❖ If occupied burrows cannot be avoided, a trapping effort will be conducted by a properly permitted wildlife biologist for the purpose of either relocation or holding and releasing individuals back into temporarily disturbed portions of the project site.
 - ❖ CDFW will be provided with a notification at least 30 days prior to trapping and relocation with a plan that includes at least the following information: 1) approximate number of San Joaquin antelope squirrels to be affected; 2) previous experience of the wildlife biologist conducting the trapping and relocation; 3) description of trapping effort; 4) description of relocation plans; 5) whether individuals will be temporarily held for release; 6) off-site release locations; 7) artificial burrow placement; and 8) proposed results reporting schedule. If CDFG does not respond within 30 days of receiving the notification, trapping and relocation will proceed as stated in the notification. San Joaquin antelope squirrels should not be relocated greater than 500 feet from capture location without prior approval from CDFW.

Comment 9: CDFW provides a link to where information on survey and monitoring protocols can be found on their website and contact information for additional questions regarding the issues presented in these comments.

Response 9: Comment noted. No further discussion required.



Attachment 1

RECEIVED

APR 11 2013

Permits Svcs
 SJVAPCD

STATE OF CALIFORNIA _____ Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION

915 CAPITOL MALL, ROOM 384
 SACRAMENTO, CA 95814
 (916) 653-6251
 (916) 657-5390 - FAX

April 8, 2013

Mr. Jessica Willis, Environmental Planner

San Joaquin Valley Unified Air Pollution Control District

1990 E. Gettysburg Avenue
 Fresno, CA 93726

RE: SCH# 2013041005 CEQA Notice of Completion; proposed Negative Declaration for the **Lost Hills Oil Field Steam Generators Vintage Production California, LLC, Project No. S-1123645**; located in the Lost Hills Area within Kern County, California.

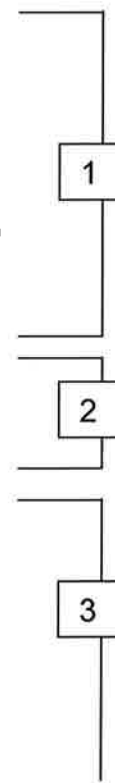
Dear Ms. Willis:

The Native American Heritage Commission (NAHC) has reviewed the CEQA Notice regarding the above referenced project. 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 to Native American burial sites.

The California Environmental Quality Act (CEQA) states that any project that causes a substantial adverse change in the significance of an historical resources, which includes archeological resources, is a significant effect requiring the preparation of an EIR (CEQA guidelines 15064(b)). To adequately comply with this provision and mitigate project-related impacts on archaeological resources, the Commission recommends the following actions be required:

Contact the appropriate Information Center for a record search to determine :if a part or all of the area of project effect (APE) has been previously surveyed for cultural places(s), The NAHC recommends that known traditional cultural resources recorded on or adjacent to the APE be listed in the draft Environmental Impact Report.

If an additional archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey. We suggest that this be coordinated with the NAHC, if possible. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure pursuant to California Government Code Section 6254.10. Contact has been made to the Native American Heritage Commission for :a Sacred Lands File Check. A list of appropriate Native American Contacts for consultation concerning the project site has been provided and is attached to this letter to determine





if the proposed active might impinge on any cultural resources. Lack of surface evidence of archeological resources does not preclude their subsurface existence.

Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) §15064.5(f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities. Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans. Lead agencies should include provisions for discovery of Native American human remains in their mitigation plan. Health and Safety Code §7050.5, CEQA §15064.5(e), and Public Resources Code §5097.98 mandates the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

4

Sincerely,

Dave Singleton
Program Analyst
(916) 653-6251

CC: State Clearinghouse

Attachment: Native American Contacts list



**Native American Contacts
Kern County
April 8, 2013**

Tubatulabals of Kern Valley
Robert L. Gomez, Jr., Tribal Chairperson
P.O. Box 226 Tubatulabal
Lake Isabella, CA 93240
(760) 379-4590
(760) 379-4592 FAX

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 7060.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed SCH# 2013041005; CEQA Notice of Completion; proposed Mitigated Negative Declaration for the Los Hills Oil Field Steam Generators Vintage Production California LLC; located in the Los Hills area of Kern County, California.



Attachment 2



State of California – Natural Resources Agency
 DEPARTMENT OF FISH AND WILDLIFE
 Central Region
 1234 East Shaw Avenue
 Fresno, CA 93710
 (559) 243-4005
www.wildlife.ca.gov

EDMUND G. BROWN JR., Governor
 CHARLTON H. BONHAM, Director



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MAY 06 2013

Permits Div.
 SJVAPCD

May 1, 2013

Jessica Willis
 Air Quality Specialist
 San Joaquin Valley Air Pollution Control District
 1990 East Gettysburg Avenue
 Fresno, CA 93726-0244

Subject: Initial Study and Draft Mitigated Negative Declaration
 Lost Hills Oil Field Steam Generators
 Vintage Production California, LLC

Dear Ms. Willis:

The California Department of Fish and Wildlife (Department) has reviewed the Initial Study and Draft Mitigated Negative Declaration for the above Project. Vintage Production California (VPC) proposes to expand its operations with the installation of nine (9) new field gas/natural gas-fired steam generators in three (3) specified project sites. The new field gas/natural gas-fired steam generators include the following: five (5) new 85 MMBtu/hr steam generators; three (3) new 62.5 MMBtu/hr steam generators; and one (1) new 85 MMBtu/hr steam generator. The Project sites are located within VPC's Heavy Oil Western Stationary Source (Facility S-1327) in the Lost Hills Oil Field which is located approximately 7 miles northwest from the Community of Lost Hills.

The Department is aware that the recommended date for submittal of written comments has passed; however, the Department has identified areas where biological resources could potentially be impacted by the implementation of the Project and would like to offer recommendations on avoidance, minimization, and mitigation measures. We hope that you will consider our comments in light of the late response.

Specifically, the Department is concerned that Project-related activities and on-going facility operations could result in impacts to special-status species known to occur in the Project area including, but not limited to the State and federally endangered and fully protected blunt-nosed leopard lizard (*Gambelia sila*), the State threatened and federally endangered San Joaquin kit fox (*Vulpes macrotis mutica*); the State threatened San Joaquin antelope squirrel (*Ammospermophilus nelsoni*); the State and federally endangered giant kangaroo rat (*Dipodomys ingens*), and the State species of special concern: burrowing owl (*Athene cunicularia*). The Project site has appropriate habitat for nesting, denning, and foraging opportunities. As such, the Department recommends focused biological surveys be conducted by qualified wildlife biologists

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during the appropriate survey period(s) and prior to any ground disturbing activities. Survey results can then be used to identify any mitigation, minimization, and avoidance measures necessary to reduce potential impacts to special status biological resources to less than significant. A biological monitor is also advised to be present throughout the duration of Project ground disturbance and construction. The Department advises these, as well as species specific recommendations be included as enforceable measures in the finalized environmental document prepared for this project so as to inform any potential permitting needs. Our comments follow.

Department Jurisdiction

Trustee Agency Authority: The Department is a Trustee Agency with responsibility under the California Environmental Quality Act (CEQA) for commenting on projects that could impact plant and wildlife resources. Pursuant to Fish and Game Code Section 1802, the Department has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and the habitat necessary for biologically sustainable populations of those species. As a Trustee Agency for fish and wildlife resources, the Department is responsible for providing, as available, biological expertise to review and comment upon environmental documents and impacts arising from project activities, as those terms are used under CEQA (Division 13 [commencing with Section 21000] of the Public Resources Code).

Responsible Agency Authority: The Department also has regulatory authority over projects that could result in the "take" of any species listed by the State as threatened or endangered, pursuant to Fish and Game Code Section 2081. If the Project could result in the "take" of any species listed as threatened or endangered under the California Endangered Species Act (CESA), the Department may need to issue an Incidental Take Permit for the Project. CEQA requires a Mandatory Finding of Significance if a project is likely to substantially impact threatened or endangered species (Sections 21001(c), 21083, Guidelines Sections 15380, 15064, 15065). Impacts must be avoided or mitigated to less than significant levels unless the CEQA Lead Agency makes and supports Statement of Overriding Consideration (SOC). The CEQA Lead Agency's SOC does not eliminate the Project proponent's obligation to comply with Fish and Game Code Section 2080.

The Department recommends consultation with the United States Fish and Wildlife Service (USFWS) prior to any site development and ground disturbance related to this Project. "Take" under the Federal Endangered Species Act (FESA) is more stringently defined than under CESA; "take" under FESA may also include significant habitat modification or degradation that could result in death or injury to a listed species, by interfering with essential behavioral patterns such as breeding, foraging, or resting. Consultation with the USFWS in order to comply with FESA is advised well in advance of Project implementation.



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Fully Protected Species: The Department has jurisdiction over fully protected species of birds, mammals, amphibians and reptiles, and fish, pursuant to Fish and Game Code sections 3511, 4700, 5050, and 5515. "Take" of any fully protected species is prohibited and the Department cannot authorize their "take." In addition to having special status under State law, the fully protected blunt-nosed leopard lizard (*Gambelia sika*) has the potential to occur in the saltbush and non-native grassland habitat throughout the Project area.

Potential Project Impacts and Recommendations

Blunt-nosed Leopard Lizard (BNLL): BNLL is known to occur in the vicinity of the Project sites and there is the potential for the species to be impacted. Because BNLL are fully protected and, therefore, no "take" incidental or otherwise can be authorized by Department, surveys are advised to be completed in all areas of suitable habitat following the Department's protocol survey methods described in the "Approved Survey Methodology for the Blunt-nosed Leopard Lizard (DFG, 2004). Suitable BNLL habitat includes all areas of grassland and shrub scrub habitat that contains required habitat elements, such as small mammal burrows. BNLL are also known to utilize open space patches between suitable habitats including disturbed sites and unpaved access roadways. These surveys, the parameters of which were designed to optimize detectability, must be conducted to reasonably assure the Department that "take" of this fully protected species will not occur as a result of Project implementation. It is important to note that protocol-level surveys must be conducted on multiple dates during late spring, summer, and fall and that within these time periods there are specific date, temperature, and time parameters which must be adhered to; as a result, protocol-level surveys for this species are not synonymous with 30-day "pre-construction" surveys often recommended for other wildlife species.

The Department advises that all potential burrows, which could be occupied by BNLL, and all individuals observed to be above ground be avoided. The Department recommends that in all areas where ground-disturbing Project activities will occur, suitable burrows within and adjacent to potential habitat for BNLL be avoided by a minimum 50 feet avoidance buffer; that an appropriate number of qualified biologists be present during all ground-disturbing Project activities to ensure that BNLL above ground are not impacted; and that any individual that may enter an area of Project activity be allowed to leave unobstructed on its own. Dirt roads can be important habitat features for BNLL, and because the Project would result in an increase in traffic during construction which increases the potential for vehicle strikes, it is advised the CEQA document clearly state how impacts to individual BNLL using those areas will be avoided including the use of a biological monitor to guide heavy equipment onto the site, exclusion fencing, and reduced speed limits to assist drivers in visually noting when an animal may be moving into or off of the roadway.



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Nesting Birds: The shrubs and grasses within and in the vicinity of the Project site likely provide nesting habitat for songbirds and raptors. If ground-disturbing activities must occur during the breeding season (February through mid-September), surveys for active nests are advised to be conducted by a qualified biologist no more than 10 days prior to the start of the disturbance activities. The Department recommends a minimum no-disturbance buffer of 250 feet around active nests of non-listed bird species; a 500-foot no-disturbance buffer around migratory bird species; and a ½-mile no-disturbance buffer from listed species and fully protected species until the breeding season has ended, or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival.

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Burrowing Owl: Burrowing owl has the potential to be present on and adjacent to the Project site and dispersing juveniles, migrants, transients or new colonizers can utilize the Project site year round. Therefore, the Department recommends the survey methodology described in the Staff Report on Burrowing Owl Mitigation dated March 7, 2012 (CDFG 2012) be followed before beginning ground disturbing activities. In the event that burrowing owls are found, the Department's Staff Report on Burrowing Owl Mitigation (CDFG 2012) recommends that impacts to occupied burrows be avoided in accordance with the following table unless a qualified biologist approved by the Department 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.

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Location	Time of Year	Level of Disturbance		
		Low	Med	High
Nesting sites	April 1-Aug 15	200 m*	500 m	500 m
Nesting sites	Aug 16-Oct 15	200 m	200 m	500 m
Nesting sites	Oct 16-Mar 31	50 m	100 m	500 m

* meters (m)

Failure to implement this buffer zone could cause adult burrowing owls to abandon the nest, cause eggs or young to be directly impacted (crushed), and/or result in reproductive failure, in violation of Fish and Game Code and the Migratory Bird Treaty Act.

If the Project proposes to evict burrowing owls that may be present, the Department recommends passive relocation during the non-breeding season. It is advised the CEQA document describe all avoidance measures that would be employed in the event that owls are found on the Project site, as well as methods that would be used to evict owls from burrows. Specification in the CEQA document of how the impact of evicting owls would be mitigated to a less than significant level is also advised. The Department's Staff Report on Burrowing Owl Mitigation (CDFG 2012) recommends that



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foraging habitat be acquired and permanently protected to offset the loss of foraging and burrow habitat. The Department also recommends replacement of occupied burrows with artificial burrows at a ratio of 1 burrow collapsed to 1 artificial burrow constructed (1:1) as mitigation for the potentially significant impact of evicting a burrowing owl.

San Joaquin Kit Fox (SJKF): SJKF are known to occur adjacent to the Project site. SJKF are known to den in right-of-ways, vacant lots, etc., and populations can fluctuate over the years. Presence/absence in any one year does not necessarily depict the potential for SJKF to occur on a site. It is important to note that SJKF may be attracted to Project area due to the type and level of activity (trenching, horizontal directional drilling, etc.) and the loose, friable soils that are created as a result of intensive ground disturbance. Because SJKF are known to be present, the Department advises that the USFWS's "Standardized recommendations for protection of the San Joaquin kit fox prior to or during ground disturbance" (2011) be followed prior to any ground-disturbing activities occurring within the Project site. In the event that this species is detected during surveys, consultation with the Department is warranted to discuss how to implement the Project and avoid "take," or if avoidance is not feasible, to acquire a State Incidental Take Permit prior to any ground-disturbing activities. These measures are recommended to be included as enforceable mitigation in the finalized CEQA document prepared for this Project.

Listed Rodent Species: The Biological Resources section of the draft MND states that a Reconnaissance-Level Biological Survey on was conducted on December 4, 2012 and that scattered small mammal burrows were identified within a 500-foot buffer area surrounding Site 1. Nelson's antelope squirrel and giant kangaroo rat (GKR) could be present and potentially impacted during ground disturbing activities on all three sites. Further, it is important to note that GKR have been recorded in many new locations this past year demonstrating this species may be undergoing a potential expansion into currently unpopulated habitat patches within its historic known range. In order to implement full avoidance for both species the Department recommends a minimum 50-foot no-disturbance buffer be employed around all burrows that could be used by these species. The presence of biological monitors is also recommended during all ground disturbance and other construction-related activities to ensure that "take" of above-ground and below-ground listed small mammal species does not occur. If full avoidance is not feasible and "take" could occur as a result of Project implementation, acquisition of an ITP, pursuant to Fish and Game Code Section 2081(b), would be warranted prior to Project implementation. These recommended avoidance, minimization, and mitigation measures are advised to be included as enforceable conditions in the CEQA document prepared for this project to ensure that individuals are not impacted by construction equipment or materials.

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More information on survey and monitoring protocols for sensitive species can be found at the Department website (www.dfg.ca.gov/wildlife/nongame/survey_monitor.html). If you have any questions on these issues, please contact Jim Vang, Environmental Scientist, at the address provided on this letterhead or by telephone at (559) 243-4014, extension 254, or by e-mail: Jim.Vang@wildlife.ca.gov.

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Sincerely,

Jeffrey R. Single, Ph.D.
Regional Manager

cc: United States Fish and Wildlife Service
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846



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CDFG, 2012. Staff Report on Burrowing Owl Mitigation. California Department of Fish and Game.

USFWS, 2011. Standard Recommendations for the Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance. United States Fish and Wildlife Service.