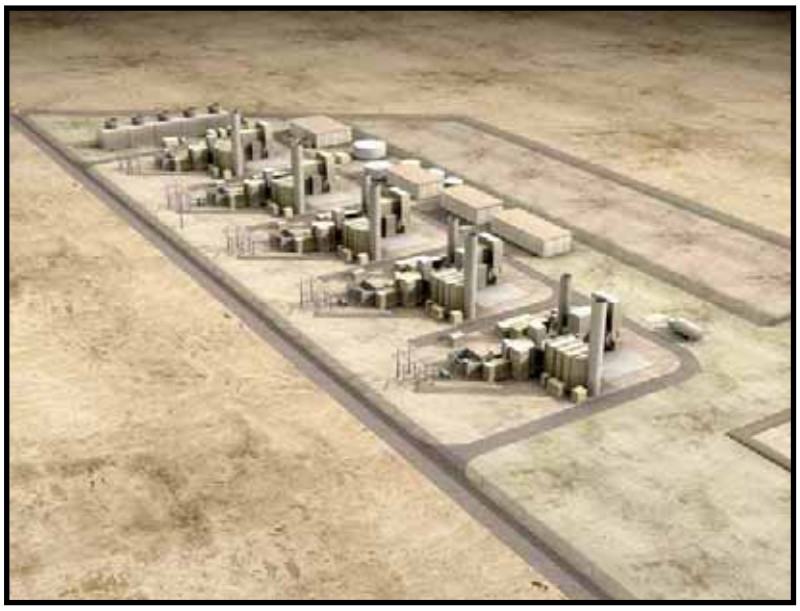
Preliminary Staff Assessment

SUN VALLEY ENERGY PROJECT

Application For Certification (05-AFC-3)
Riverside County



CALIFORNIA ENERGY COMMISSION

DOCKET
05-AFC-3

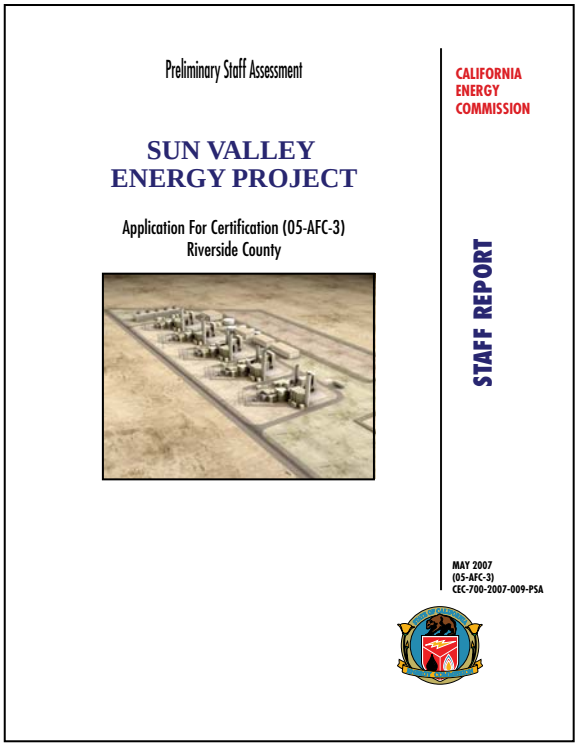
DATE

RECD. MAY 16 2007

STAFF REPORT

MAY 2007
(05-AFC-3)
CEC-700-2007-009-PSA

PROOF OF SERVICE (REVISED 5/2/07) FILED WITH
ORIGINAL MAILED FROM SACRAMENTO ON 5/17/07



CALIFORNIA ENERGY COMMISSION

SITING OFFICE

Bob Worl
Project Manager

Roger E. Johnson
Siting Office Manager

ENERGY FACILITIES SITING DIVISION

Terrence O'Brien
Deputy Director

SUN VALLEY ENERGY PROJECT
(05-AFC-3)
PRELIMINARY STAFF ASSESSMENT

EXECUTIVE SUMMARY

Robert Worl

INTRODUCTION

This Preliminary Staff Assessment (PSA) contains the California Energy Commission (Energy Commission) staff's independent analysis and preliminary recommendation on the Sun Valley Energy Project (SVEP). The SVEP and related facilities, such as the natural gas line, reclaimed and potable water supply lines and transmission lines, are under the Energy Commission's jurisdiction. When issuing a license, the Energy Commission is the lead state agency under the California Environmental Quality Act, and its process is functionally equivalent to the preparation of an environmental impact report. After a 30-day public comment period on the PSA, staff will issue its testimony in the form of the Final Staff Assessment (FSA) that incorporates any changes required as a result of comments received on the PSA.

The Energy Commission staff has the responsibility to complete an independent assessment of the project's potential effects on the environment, the public's health and safety, and whether the project conforms with all applicable laws, ordinances, regulations and standards (LORS). The staff also recommends measures to mitigate potential significant adverse environmental effects and conditions for construction, operation and eventual closure of the project, if approved by the Energy Commission.

This PSA is not the decision document for these proceedings nor does it contain findings of the Energy Commission related to environmental impacts or the project's compliance with local/state/federal legal requirements. The FSA will serve as staff's testimony in evidentiary hearings to be held by the Committee of two Commissioners who are hearing this case. The Committee will hold evidentiary hearings and will consider the recommendations presented by staff, the applicant, all parties, government agencies, and the public prior to proposing its decision. The Energy Commission will make the final decision, including findings, after the Committee's publication of its proposed decision.

PROJECT DESCRIPTION

On December 1, 2005, Valle del Sol Energy, LLC (VSE), a wholly-owned subsidiary of Edison Mission Energy (EME), filed an Application for Certification (AFC) for the Sun Valley Energy Project (SVEP), seeking approval from the California Energy Commission to construct and operate a nominal 500 megawatt (MW) simple-cycle power plant in western Riverside County. On February 1, 2006, the Energy Commission accepted the AFC (05-AFC-3), with supplemental information, as complete. This determination initiated Energy Commission staff's independent analysis of the proposed project.

The proposed SVEP is located at 25900 Rouse Road, 0.75 miles south of the unincorporated city of Romoland, in the western section of Riverside County. The project site is a 20-acre portion of five parcels owned by VSE. The site has most recently been in agricultural production, though no crop is planned for 2007.

The SVEP site is zoned Manufacturing-Service Commercial (M-SC) which allows for industrial uses including warehousing, manufacturing uses, electric transmission lines, and the Southern California Edison (SCE) Valley Substation. The Inland Empire Energy Center, an 800 megawatt combined-cycle power plant, is under construction approximately 0.5 miles to the northwest. Residential areas are located approximately one mile to the south and the new Menifee Valley Ranch Subdivision is currently under construction approximately 1,500 feet to the east. Additional housing is planned for an area approximately 0.05 miles to the west of the site.

Natural gas for the project would be supplied to the SVEP by Southern California Gas Company via a 750-long 12-inch diameter pipeline connection to one or more of the three existing 30-inch diameter high-pressure gas pipelines that run in a utility easement within the SVEP parcel and parallel to Menifee Road. The SVEP would be connecting at 115 kV to the SCE electrical system at the existing Valley Substation which is located approximately 600 feet north of the project site. The preferred connection would require two 90-foot tall monopole towers outside of the SVEP property boundary and would be approximately 600 feet in length. SCE has indicated that due to required rerouting of some of its existing and planned 500 kV and 230 kV lines that they may require the SVEP to use one of two alternate routes to the Valley Substation. This would increase the required number of monopoles to as many as five, and the length of the interconnection up to 950-feet in length depending upon which route is finally selected. All three routes for the 115 kV transmission line and the offsite transmission monopoles would be located within SCE's existing transmission line corridor.

The SVEP would use tertiary-treated reclaimed water from the Eastern Municipal Water District's system, interconnecting in an existing utilities easement, directly adjacent to the project site in Mathews Road. The reclaimed water will be used for all cooling and process water demand, and for landscape irrigation. This water would be supplied to the SVEP site via an approximately 20-foot long and 12-inch diameter pipeline connection to an existing reclaimed water pipeline north of the project site. Potable water will serve domestic, sanitary and fire protection purposes, and will be provided via a 4-inch diameter pipeline extending 30 feet beyond the project boundary to the north of the project boundary.

The project is proposed to be operational by the Summer of 2010.

A more complete description of the project is contained in the **PROJECT DESCRIPTION** section of this PSA.

PUBLIC AND AGENCY COORDINATION

The Energy Commission's SVEP Committee conducted an Informational Hearing and Site Visit on February 27, 2006. This hearing provided a forum for the public to learn about the project, the Energy Commission's process, ask questions, and voice their opinions regarding the proposed power plant.

When the AFC was filed, staff mailed a notice to all property owners adjacent to the proposed project informing them of the proposal, and the Energy Commission's review

process. Staff's notice also informed the property owners of the methods available for participating in the Commission's review of the proposal.

Staff conducted a workshop on April 25, 2006 to discuss the applicant's responses to staff's data requests and to work toward resolving issues. This workshop was open to all interested agencies and members of the public. An additional community workshop in Romoland was sponsored by the South Coast Air Quality Management District on October 18, 2006, to allow public input into the District's Proposed Amended Rule 1309.1 and to hear comments on the SVEP.

Staff also coordinated their review of the SVEP with relevant local, state and federal agencies, including the County of Riverside, the California Independent System Operator, the South Coast Air Quality Management District, the U.S. Fish and Wildlife Service, the U.S. Forest Service and the U.S. Environmental Protection Agency. A number of these agencies provided responses and comments concerning the project which are included in the appropriate sections of staff's analysis. In addition the Romoland School District, a formal intervener in the process, has provided both information as well as numerous comments on the project.

Staff has, through an application submitted by VSE to the County of Riverside, received an Advisory Conditional Use Permit which provides analysis and suggested requirements from County departments. The Advisory Conditional Use Permit was used to aid staff's evaluation in a number of technical areas. The findings from this document are included in this PSA as **LAND USE Attachment 1**. The County of Riverside, though recognizing the exclusive authority of the Energy Commission for permitting the SVEP, has provided the Energy Commission with this Advisory Conditional Use Permit as a tool for completing our analysis of the proposed project, and an aid to agency coordination.

This PSA provides agencies, interveners and the public the opportunity to review the Energy Commission staff's analysis of the proposed Sun Valley Energy Project.

Written comments on this PSA will be taken into consideration in preparing the Final Staff Assessment (FSA).

ENVIRONMENTAL JUSTICE

EPA guidelines on environmental justice state that if 50 percent of the population affected by a project has minority or low-income status, it must be determined if these populations are exposed to disproportionately high and adverse human health or environmental impacts.

Staff has reviewed Census 2000 data that shows the minority population by census block is 40.17 percent within a six-mile radius and 43.28 percent within a one-mile radius of the proposed SVEP which is below staff's threshold of greater than fifty percent (**See SOCIOECONOMICS Figure 1**). The same Census 2000 data set shows that the below poverty population is 14.25 percent within the six-mile radius and 9.27 percent within the one-mile radius. There are, however, several census blocks which do have a greater than 50 percent minority population. Because staff has determined there

is a minority population within the six-mile radius, staff has incorporated an analysis of environmental justice concerns in its analysis of technical areas.

When a minority or low-income population is identified, staff in the technical areas of air quality, public health, hazardous materials, noise, water, waste, traffic and transportation, visual resources, land use, socioeconomics, and transmission line safety and nuisance must consider possible impacts on the minority/low-income population as part of their analysis. This environmental justice analysis consists of identification of significant impacts (if any), identification of mitigation, and determination of whether there is a disproportionate impact to the minority or low-income community if an unmitigated significant impact has been identified.

Staff has concluded that, with the exception of air quality and public health, the project does not result in any disproportionate significant unmitigated impacts to an environmental justice population. Air quality and public health staff cannot complete their analysis until the South Coast Air Quality Management District (Air District) opens its Priority Reserve Program to electric generation facilities allowing the applicant to complete the project's air emissions mitigation package. The Air District is currently considering amendments to its rules governing access to the Priority Reserve Program and plans to adopt amendments at their July 13, 2007. A complete analysis of the potential environmental justice impacts of the proposed SVEP will be presented in the Final Staff Assessment.

STAFF'S ASSESSMENT

Each technical area section of the PSA contains a discussion of impacts, staff's preliminary conclusions and recommendations, and, where appropriate, mitigation measures and conditions of certification. The PSA includes staff's assessments of:

- the environmental setting of the proposal;
- impacts on public health and safety, and measures proposed to mitigate these impacts;
- environmental impacts, and measures proposed to mitigate these impacts;
- the engineering design of the proposed facility, and engineering measures proposed to ensure the project can be constructed and operated safely and reliably;
- project closure;
- project alternatives; and
- compliance of the project with all applicable laws, ordinances, regulations and standards (LORS) during construction and operation.

OVERVIEW OF STAFF'S CONCLUSIONS

Staff's Air Quality and Public Health conclusions are currently incomplete pending actions by the South Coast Air Quality Management District which will allow access to its Priority Reserve Program. Staff's preliminary analysis indicates that for all other areas the project's environmental impacts can be mitigated to levels of less than

significant, and that the project would conform with all applicable LORS. Staff will present a complete analysis, and recommendation, in the Final Staff Assessment.

The following table summarizes the potential environmental impacts and LORS compliance for each technical area.

	Technical Discipline	Environmental / System Impact	LORS Conformance
1	Air Quality	Not Complete	to be determined
2	Biological Resources	Impacts Mitigated	Yes
3	Cultural Resources	Impacts Mitigated	Yes
4	Power Plant Efficiency	No Impact	N/A
5	Power Plant Reliability	No Impact	N/A
6	Facility Design	Impacts Mitigated	Yes
7	Geology/Paleontolgy	Impacts Mitigated	Yes
8	Hazardous Materials	Impacts Mitigated	Yes
9	Land Use	Impacts Mitigated	Yes
10	Noise	Impacts Mitigated	Yes
11	Public Health	Not Complete	to be determined
12	Socioeconomics	Impacts Mitigated	Yes
13	Traffic and Transportation	Impacts Mitigated	Yes
14	Transmission Line Safety	Impacts Mitigated	Yes
15	Transmission System Engineering	Impacts Mitigated	Yes
16	Visual Resources	Impacts Mitigated	Yes
17	Waste Management	Impacts Mitigated	Yes
18	Water and Soils	Impacts Mitigated	Yes
19	Worker Safety	Impacts Mitigated	Yes

Air Quality

At this time, Energy Commission Staff's analysis has determined that VSE has not secured or identified sufficient emission reduction credits to offset the air quality emission impacts of sulfur dioxide (SO_2), volatile organic compounds (VOC), particulate matter less than 10 microns in diameter (PM10) and particulate matter less than 2.5 microns in diameter (PM2.5). The applicant is relying upon the Air District Priority Reserve Program for the majority of the emission credits needed to offset the potential impacts of the SVEP. The Air District Priority Reserve Program's available credits are sufficient for the purpose of mitigating pending projects' air quality impacts, including the SVEP. VSE must still perform a due diligence effort to secure offsets for the project's emissions on the open market to insure their eligibility to access the Priority Reserve Program once the SCAQMD completes its own internal process.

The Air District Priority Reserve Program is currently subject to additional changes based on the potential for amendment under the Proposed Amended Rule 1309.1 currently being considered by the Executive Board, with possible adoption as early as July 13, 2007.

Upon the completion by the applicant of the due diligence effort noted above, the Air District completion of the amendment process for the Priority Reserve Program which will allow the SVEP to acquire the remainder of its necessary emission reduction credits, and indicates that they will comply with staff's proposed conditions of certification, staff will be able make its final assessment of the project impacts. These conclusions will be presented in the FSA.

Public Health

The Energy Commission Public Health staff's determination of LORS compliance and the level of potential project impacts are dependent on a determination by the Air Quality staff that the acquisition of emission reduction credits through the applicant's due diligence efforts and access to the Priority Reserve Program is complete. When the applicant completes these steps and indicates that they will comply with staff's proposed conditions of certification staff will be able to make its final assessment of the project impacts. These conclusions will be presented in the FSA.

CONCLUSION AND RECOMMENDATIONS

With the exceptions noted above that are necessary for completion of the analyses in Air Quality and Public Health, the project would comply with LORS and not cause any unmitigated adverse significant impacts to the environment, public health and safety, and the transmission system, provided the recommended Conditions of Certification are implemented. As noted above, staff needs additional information regarding the Priority Reserve Program to complete analyses of the potential impacts in the Air Quality and Public Health technical areas.

Staff will notice and conduct a workshop on May 31, 2007 for the purpose of receiving public comment on this PSA and to resolve any remaining issues prior to release of the Final Staff Assessment.

INTRODUCTION

Robert Worl

PURPOSE OF THIS REPORT

The Preliminary Staff Assessment (PSA) presents the California Energy Commission (Energy Commission) staff's independent analysis of the Sun Valley Energy Project (SVEP) Application for Certification (AFC). This PSA is a staff document. It is neither a Committee document, nor a draft decision. The PSA describes the following:

- the existing environmental setting;
- the proposed project;
- whether the facilities can be constructed and operated safely and reliably in accordance with applicable laws, ordinances, regulations and standards (LORS);
- the environmental consequences of the project including potential public health and safety impacts;
- cumulative analysis of the potential impacts of the project, along with potential impacts from other existing and known planned developments;
- mitigation measures proposed by the applicant, staff, interested agencies and intervenors that may lessen or eliminate potential impacts;
- the proposed conditions under which the project should be constructed and operated, if it is certified;
- project alternatives; and
- the project closure requirements.

The 19 technical area analyses contained in this PSA are based upon information from: 1) the AFC; 2) subsequent submittals; 3) responses to data requests; 4) supplementary information from local and state agencies interveners, and interested individuals; 5) existing documents and publications; and 6) independent field studies and research. The analyses for most technical areas include discussions of proposed conditions of certification. Each proposed condition of certification is followed by a proposed means of "verification." The verification is not part of the proposed condition, but is the Energy Commission Compliance Unit's method of ensuring post-certification compliance with adopted requirements.

The Energy Commission staff's analyses were prepared in accordance with Public Resources Code section 25500 et seq. and Title 20, California Code of Regulation section 1701 et seq., and the California Environmental Quality Act (CEQA) Public Resources Code section 21000 et seq.

ORGANIZATION OF THE STAFF ASSESSMENT

The PSA contains an Executive Summary, Introduction, Project Description, and Project Alternatives. The environmental, engineering, and public health and safety analysis of the proposed project is contained in a discussion of 19 technical areas. Each technical area is addressed in a separate chapter as follows: air quality, public health, worker safety and fire protection, transmission line safety, hazardous material management, waste management, land use, traffic and transportation, noise, visual resources, cultural resources, socioeconomics, biological resources, soil and water resources, geological and paleontological resources, facility design, power plant reliability, power plant efficiency, and transmission system engineering. These chapters are followed by a discussion of facility closure, project construction and operation compliance monitoring plans, and a list of staff that assisted in preparing this report.

Each of the 19 technical area assessments includes a discussion of:

- laws, ordinances, regulations and standards (LORS);
- the regional and site-specific setting;
- project specific and cumulative impacts;
- mitigation measures;
- closure requirements;
- conclusions and recommendations; and
- conditions of certification for both construction and operation.

ENERGY COMMISSION SITING PROCESS

The California Energy Commission has the exclusive authority to certify the construction and operation of thermal electric power plants 50 megawatts (MW) or larger. The Energy Commission certification is in lieu of any permit required by state, regional, or local agencies, and federal agencies to the extent permitted by federal law (Pub. Resources Code, §25500). The Energy Commission must review power plant AFCs to assess potential environmental and public health and safety impacts, potential measures to mitigate those impacts (Pub. Resources Code, §25519), and compliance with applicable governmental laws and standards (Pub. Resources Code, §25523 (d)).

The Energy Commission's siting regulations require staff to independently review the AFC and assess whether the list of environmental impacts it contains is complete, and whether additional or more effective mitigation measures are necessary, feasible and available (Cal. Code Regs., tit. 20, §§ 1742 and 1742.5(a)). Staff's independent review is presented in this report (Cal. Code Regs., tit. 20, §1742.5).

In addition, staff must assess the completeness and adequacy of the health and safety standards, and the reliability of power plant operations (Cal. Code Regs., tit. 20, § 1743(b)). Staff is required to coordinate with other agencies to ensure that applicable

laws, ordinances, regulations and standards are met (Cal. Code Regs., tit. 20, § 1744(b)).

Staff conducts its environmental analysis in accordance with the requirements of CEQA. No Environmental Impact Report (EIR) is required because the Energy Commission's site certification program has been certified as a certified regulatory program by the Resources Agency (Pub. Resources Code, §21080.5 and Cal. Code Regs., tit. 14, §15251(k)). The Energy Commission acts as the CEQA lead agency and is subject to all other applicable portions of CEQA.

Staff typically prepares both a preliminary and a final staff assessment. The Preliminary Staff Assessment (PSA) presents for the applicant, interveners, agencies, other interested parties and members of the public, the staff's preliminary analysis, conclusions, and recommendations.

Staff uses the PSA to resolve issues between the parties and to narrow the scope of adjudicated issues in the evidentiary hearings which follow publication of the Final Staff Assessment (FSA). During the period between publishing the PSA and the FSA, staff will conduct one or more workshops to discuss their findings, proposed mitigation, and proposed compliance monitoring requirements. Based on the workshops and written comments, staff will refine their analysis, correct any errors, and finalize conditions of certification to reflect areas where staff has reached agreement with the parties. This refined analysis, along with responses to written comments on the PSA, will be published in the FSA. The FSA serves as staff's testimony on a proposed project.

This staff assessment is only one piece of evidence that will be considered by the assigned Hearing Officer and the Committee (two Commissioners who have been assigned to this project) in reaching a decision on whether or not to recommend that the full Energy Commission approve the proposed project. At the public hearings, all parties will be afforded an opportunity to present evidence and to rebut the testimony of other parties, thereby creating a hearing record on which a decision on the project can be based. The hearing before the Committee also allows all parties to argue their positions on disputed matters, if any, and it provides a forum for the Committee to receive comments from the public and other governmental agencies.

Following the hearings, the Committee's recommendation to the full Energy Commission on whether or not to approve the proposed project will be contained in a document entitled the Presiding Members' Proposed Decision (PMPD). Following publication, the PMPD is circulated in order to receive written public comments. At the conclusion of the comment period, the Committee may prepare a revised PMPD. A revised PMPD will be circulated for a comment period to be determined by the Committee. At the close of the comment period for the revised PMPD, the PMPD is submitted to the full Energy Commission for a decision. Within 30 days of the Energy Commission decision, any intervener may request that the Energy Commission reconsider its decision.

A Compliance Monitoring Plan and General Conditions will be assembled from conditions contained in the FSA and other evidence presented at the hearings. The Compliance Monitoring Plan and General Conditions will be presented in the PMPD.

Commission staff's implementation of the plan ensures that a certified facility is constructed, operated, and closed in compliance with the conditions adopted by the Energy Commission. Staff's proposed description of the contents of the Compliance Monitoring Plan and proposed General Conditions are included in the **GENERAL CONDITIONS** section of this PSA.

Agency Coordination

As noted above, the Energy Commission certification is in lieu of any permit required by state, regional, or local agencies, and federal agencies to the extent permitted by federal law (Pub. Resources Code, § 25500). However, the Commission typically seeks comments from and works closely with other regulatory agencies that administer LORS that may be applicable to proposed projects. These agencies include the U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, U.S. Forest Service, California Department of Fish and Game, and the California Air Resources Board.

PROJECT DESCRIPTION

Robert Worl

INTRODUCTION

On December 1, 2005, Valle del Sol Energy, LLC, (VSE) a wholly-owned subsidiary of Edison Mission Energy (EME), submitted an Application for Certification (AFC) seeking a license from the California Energy Commission to construct and operate the Sun Valley Energy Project (SVEP). The SVEP would be a 500 megawatt (MW) simple-cycle peaking power plant located south of the unincorporated city of Romoland in the western unincorporated portion of Riverside County. The SVEP would add 500 MW of generating capacity to Southern California Edison's (SCE) grid through the nearby SCE Valley Substation. On February 1, 2006, The Energy Commission accepted the AFC (05-AFC-3) with supplemental information as complete, initiating the Energy Commission staff's independent analysis of the proposed project.

PURPOSE OF THE PROJECT

The SVEP is designed as a peaking facility intended to meet electrical needs in Southern California during periods of peak demand, most frequently occurring during daytime hours on hot summer days. The proposed use of the new General Electric Energy LMS 100 combustion turbine generators (CTGs) would ensure that the SVEP would be economically competitive with other current simple-cycle systems, providing faster startup times, and greater efficiency (approximately 41.8 percent). The annual capacity factor for the SVEP is expected to range between 20 to 40 percent, depending on weather-related customer demand, load growth, hydroelectric supplies, weather conditions, older generating unit retirements and other factors affecting the power market (VSE 2005b, p. 2-18).

PROJECT LOCATION

The SVEP facility will be located at 29500 Rouse Road, approximately .075 miles southeast of Romoland in unincorporated western Riverside County. The proposed project site is an approximately 20-acre site, contained in two parcels, previously in agricultural use, with no crop intended to be grown on the site in 2007. The land is currently zoned Manufacturing-Service Commercial (M-SC), which will allow the construction and operation of the SVEP (Riverside County 2006c). The Assessor's Parcel Numbers that will contain the proposed project are 331-250-019 and -020. The site is located in Township 5S, Range 3W, Section 14 (San Bernardino Base and Meridian). VSE has completed the purchase of five adjoining parcels, including the two that will comprise the project site. The parcels containing the project will be merged prior to the start of construction (see the **LAND USE** section of this document for additional information). **PROJECT DESCRIPTION Figure 1** provides an architectural rendering of the proposed project.

The site is surrounded to the south, east, and west, by industrial and agricultural uses. Directly to the north are the Burlington Northern and Santa Fe (BNSF) railroad tracks

and the SCE Valley Substation. To the northwest are areas zoned industrial that are in agricultural or industrial use, including the Inland Empire Energy Center currently under construction. Immediately east of the proposed site is an open agricultural field zoned for Light Industrial uses and, 1,000 feet further east across Menifee Road, is the Menifee Valley Ranch residential development now under construction. To the south are agricultural and residential structures and two elementary schools. Two additional elementary schools are to the northwest, and northeast of the project site. **PROJECT DESCRIPTION Figure 2** depicts the project's regional setting. The local setting for the project including key linear facilities, the location of the Inland Empire Energy Center, the Valley Substation, and the approximate location of the three schools within one mile of the project are depicted in **PROJECT DESCRIPTION Figure 3**.

POWER PLANT EQUIPMENT AND LINEAR FACILITIES

The SVEP will be a nominal 500-megawatt (MW) peaking facility powered by five GE Energy LMS100 natural gas-fired combustion turbine-generators (CTGs) and associated equipment. The LMS100 is unique in that it integrates features of both GE's frame and aeroderivative CTG systems and is capable of rapid starts, with the ability to quickly ramp electrical output from low to full-power. Additional information regarding the LMS100 CTGs can be found in the **Power Plant Efficiency** and the **Power Plant Reliability** sections of this document. Each of the LMS100 CTGs will be equipped with water injection capability to reduce emissions of nitrogen oxides (NO_x), selective catalytic reduction (SCR) to further reduce NO_x emissions, and an oxidation catalyst to reduce carbon monoxide (CO) emissions. The emission reduction equipment will be contained within a housing that terminates at the 90-foot tall CTG exhaust stacks. A 39-foot tall, 5-cell mechanical-draft cooling tower extending approximately 211 feet in length will meet plant cooling needs. Auxiliary equipment will include an inlet air filter house with evaporative cooler, turbine inter-cooler, and circulating water pumps, natural gas compressors, generator voltage step-up and auxiliary transformers, reverse osmosis water treatment equipment and water storage tanks. The SVEP site plan indicating major equipment locations and the linear facilities connections is depicted in **PROJECT DESCRIPTION Figure 4**.

ELECTRICAL TRANSMISSION

The electric power produced by the facility will be transmitted to the electrical grid through a 115-kV connection with the SCE Valley Substation. The preferred transmission connection to the Valley Substation is approximately 600-feet long and requires two 90-foot monopole conductor support towers, one on the north end of the project site, and one located north of Mathews Road adjacent to the Valley Substation. SCE has recently indicated that it may reroute other lines entering the substation and this would require selecting one of two alternate routes, that are 900 feet and 950 feet long respectively, requiring up to four 90-foot monopole conductor support towers, one or two on the north end of the project site and two to be located across Mathews Road adjacent to the Valley Substation within SCE's existing transmission corridors. These alternate connections are discussed in more detail in the **Transmission System Engineering,** and **Alternatives** sections of this document, and the approximate location is depicted on **PROJECT DESCRIPTION Figure 3**.

NATURAL GAS SUPPLY

Natural gas will be delivered to the site via a 12-inch diameter line, 750 feet in length, running along Mathews Road and connecting to one or more of three existing 30-inch pipelines located in a utility easement east of the project site adjacent to Menifee Road. (**PROJECT DESCRIPTION Figures 3 and 4**).

WATER SUPPLY

The SVEP proposes to use reclaimed water for cooling, power plant processes, and for landscape irrigation. The northeastern project boundary paralleling Mathews Road contains a previously established utility corridor containing natural gas, reclaimed water, potable water, and sanitary sewer lines. Short, approximately 20 feet in length, lines for reclaimed water (a 12-inch diameter pipe), potable water (a 4-inch diameter pipe), and sanitary sewer (a 4-inch diameter pipe) will connect to existing utility lines that are located in the utility corridor. The reclaimed water supply reliability is ensured by the fact that the Eastern Municipal Water District (EMWD) can draw recycled water from several treatment plants. Plant process water will include demineralized water used for NO_x control via injection into the CTGs and for evaporative cooling. This clean process water will be obtained by passing recycled water through the on-site reverse osmosis system and storing it in on-site tanks. Potable water will be furnished from the city's water system for drinking and sanitary use, discharging to the sanitary waste line. Potable water will also connect to the plant fire hose stations (**PROJECT DESCRIPTION Figure 4)**.

Water will be pumped from the reclaimed water storage tank to the cooling tower basins as required to replace (i.e. make up) water lost from evaporation, drift, and blowdown. A chemical feed system will supply water conditioning chemicals to the circulating water in the cooling tower system to minimize corrosion and control the formation of mineral scale and biofouling.

A cooling tower will be provided for the gas turbine auxiliary cooling requirements. Two 50-percent-capacity circulating water pumps will provide water to cool three closed-loop cooling water heat exchangers. The closed-loop cooling water heat exchangers will provide treated and filtered cooling water to each combustion turbine (CT), to the CT compressor intercoolers and to the lubrication systems.

The circulating water system blowdown will consist of the recovered process wastewater streams that have been concentrated by evaporative losses in the cooling towers, and containing the residues from the chemicals added to the circulating water. This water will be discharged to the Santa Ana Regional Interceptor as described below.

WASTEWATER DISCHARGE

Cooling tower blowdown will be discharged to the non-reclaimable wastewater line which will run approximately 0.75 miles along Mc Laughlin Road in an existing utility right of way to an interconnection with a newly-constructed wastewater line connecting the Inland Empire Energy Center with the EMWD's industrial water disposal system. This system connects to the Temescal Valley Regional Interceptor (TVRI) and Santa Ana Regional Interceptor (SARI) pipeline systems which convey industrial wastewater to the Orange County Sanitation District (OCSD) wastewater treatment plant in Orange, California.

Water processed at this facility, after treatment and/or dilution, discharges to an ocean outfall. Sanitary sewer discharge for the SVEP will be to the city sewer line located within the utility easement on the north side of the project site. Additional information regarding water supply and wastewater handling is contained in the **Soils and Water** section of this PSA.

STORMWATER

The stormwater from the SVEP site will be collected in a stormwater retention pond at the south end of the project site (**PROJECT DESCRIPTION Figure 4)**. In March of 2007, the County of Riverside prepared an Advisory Conditional Use Permit for the SVEP (County of Riverside, 2007a) in which the county provided new retention basin and stormwater disposal requirements. These are discussed in the **Soils and Water** section of this document.

PERMANENT SITE ACCESS ROUTE IMPROVEMENT

Should the SVEP be licensed by the Energy Commission and at the completion of the construction of the project, the permanent access route to the project site will be along currently unimproved county roads from Menifee Road due west on Rouse Road to the intersection with Junipero Road, and north along Junipero Road to the controlled-access entrance. The AFC and the Advisory Conditional Use Permit for the SVEP indicate that this permanent access route will be paved to the County standards after completion of the project. This is discussed more fully in the Traffic and Transportation section of this document.project construction and operation

PROJECT CONSTRUCTION AND OPERATION

Capital costs for the construction of the SVEP are estimated to be between $220 and $280 million (VSE, 2005b, p. 8.10-15). Project construction is anticipated to take approximately 12 months with an average construction workforce of approximately 220 workers per month, peaking during the eighth month at 408 workers. Equipment laydown and employee parking areas are planned to be at the eastern portion of the site. Operations staff would consist of two operators per shift, two relief operators, and one maintenance technician, for a total staff of nine. The SVEP would be capable of being dispatched throughout the year, but is expected to operate primarily during the summer on-peak and mid-peak periods. The SVEP is expected to have a 30-year operating life, though depending upon economic viability this period could be longer.

Though the AFC was deemed complete by the Energy Commission at the February 1, 2006, Business Meeting as a 12-month AFC project on, there have been significant delays to the project schedule. Important delays relate to the South Coast Air Quality Management District's (SCAQMD) process in completing revisions to Rule 1309.1, the Priority Reserve Program, and amendments to the newly adopted rules that allows the SVEP and other electrical generation projects to acquire emissions reduction credits (ERCs) through the SCAQMD. This rule making is now scheduled for a Hearing on July 13, 2007. This has delayed a decision on granting a license by the Energy Commission. Based upon SCE's projected Request for Offer plans, commercial operation of the SVEP is projected for 2010.

FACILITY CLOSURE

The SVEP will be designed for an operating life of at least 30 years. At some point in the future, the project will cease operation. The removal of the facility from service, or decommissioning, may range from “mothballing” to the removal of equipment and appurtenant facilities, depending on conditions at the time. The conditions that would affect the decommissioning decision are largely unknown at this time. To ensure that public health and safety and the environment are protected during decommissioning, staff has proposed that a decommissioning plan will be submitted to the Energy Commission for approval prior to any work.

REFERENCES

CEC (California Energy Commission) 2006a (tn:36536). Staff Data Requests 1 through 80. March 15, 2006.

CEC (California Energy Commission) 2006b (tn:36642). Staff Data Requests 81 through 90. March 30, 2006.

CH2MHill 2006a (tn:36761). Applicant's Responses to CEC Staff Data Requests 1-80 for the Sun Valley Energy Project (05-AFC-3). April 17, 2006.

CH2MHill 2006d (tn:36873). Applicant's Responses to CEC Staff Data Requests 81-90 for the Sun Valley Energy Project (05-AFC-3). May 1, 2006.

CH2MHill 2006e (tn:37051). Supplement I in Response to Data Requests 1-93, and Workshop Questions from April 25, 2006 for the Sun Valley Energy Project (05-AFC-3). May 30, 2006.

CH2MHill 2006f (tn: 39640). Supplement II in Response to Data Requests 1-93, and Workshop Questions from April 25, 2006 for the Sun Valley Energy Project (05-AFC-3). July 7, 2006.

CH2MHill 2006g (tn:37785). Supplement III in Response to Data Requests 1-93, and Workshop Questions from April 25, 2006 for the Sun Valley Energy Project (05-AFC-3). September 1, 2006.

CH2MHill 2006h (tn: 38940). Supplement Cultural Resources Survey in response to Workshop Questions from December, 2006 for the Sun Valley Energy Project (05-AFC-3). January 16, 2007.

Romoland School District. 2006a (tn:36611). Romoland School District Comments on the Proposed Sun Valley Energy Project (Revised with 2 attachments). March 10, 2006.

Riverside County 2006a. Riverside County General Plan.

Riverside County Code 2006b. Riverside County Code.

Riverside County 2007a (tn:39894). Advisory Conditional Use Permit: The Sun Valley Energy Project. March 13, 2007.

SCAQMD (South Coast Air Quality Management District), 2006a. Notice of Preparation of a Draft Environmental Assessment for Proposed Amended Rules 1309.1 – Priority Reserve and 1302 – Definitions. February 16, 2006.

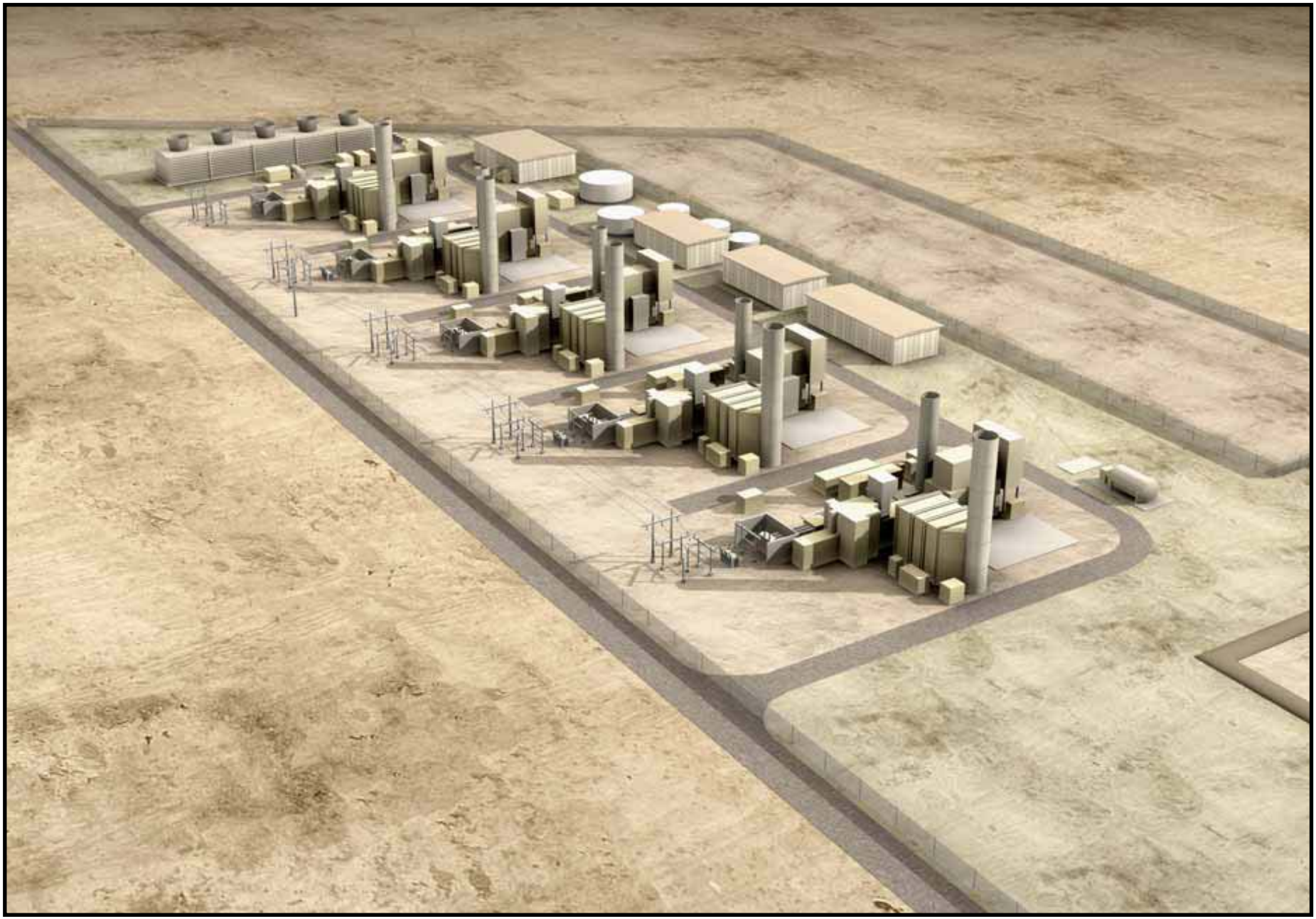
SCAQMD (South Coast Air Quality Management District) 2007a (tn:39102). Preliminary Determination of Compliance for the Sun Valley Energy Project. January 23, 2007.

VSE (Valle del Sol Energy, LLC). 2005b (tn: 35986). Application for Certification for Sun Valley Energy Project, Volumes 1 and 2. Submitted to the California Energy Commission, December 1, 2005.

VSE (Valle del Sol Energy, LLC). 2006a (tn: 36208). Data Adequacy Supplement for Sun Valley Energy Project, Application for Certification. January 12, 2006.

PROJECT DESCRIPTION - FIGURE 1

Sun Valley Energy Project - Architectural Rending of Project Site

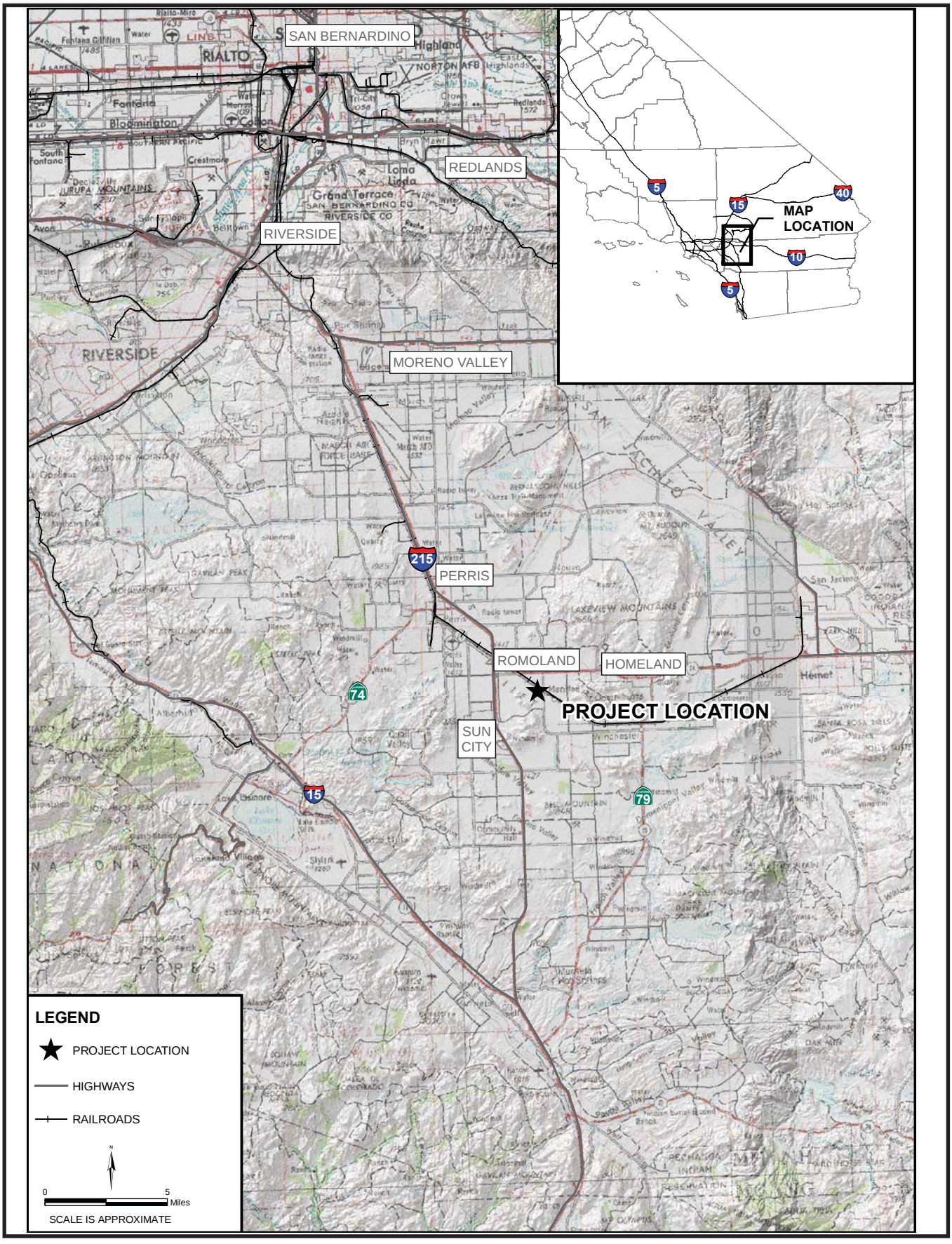


CALIFORNIA ENERGY COMMISSION, ENERGY FACILITY SITING DIVISION, APRIL 2007

SOURCE: AFC Figure 1.1-1

PROJECT DESCRIPTION - FIGURE 2

Sun Valley Energy Project - Project Vicinity

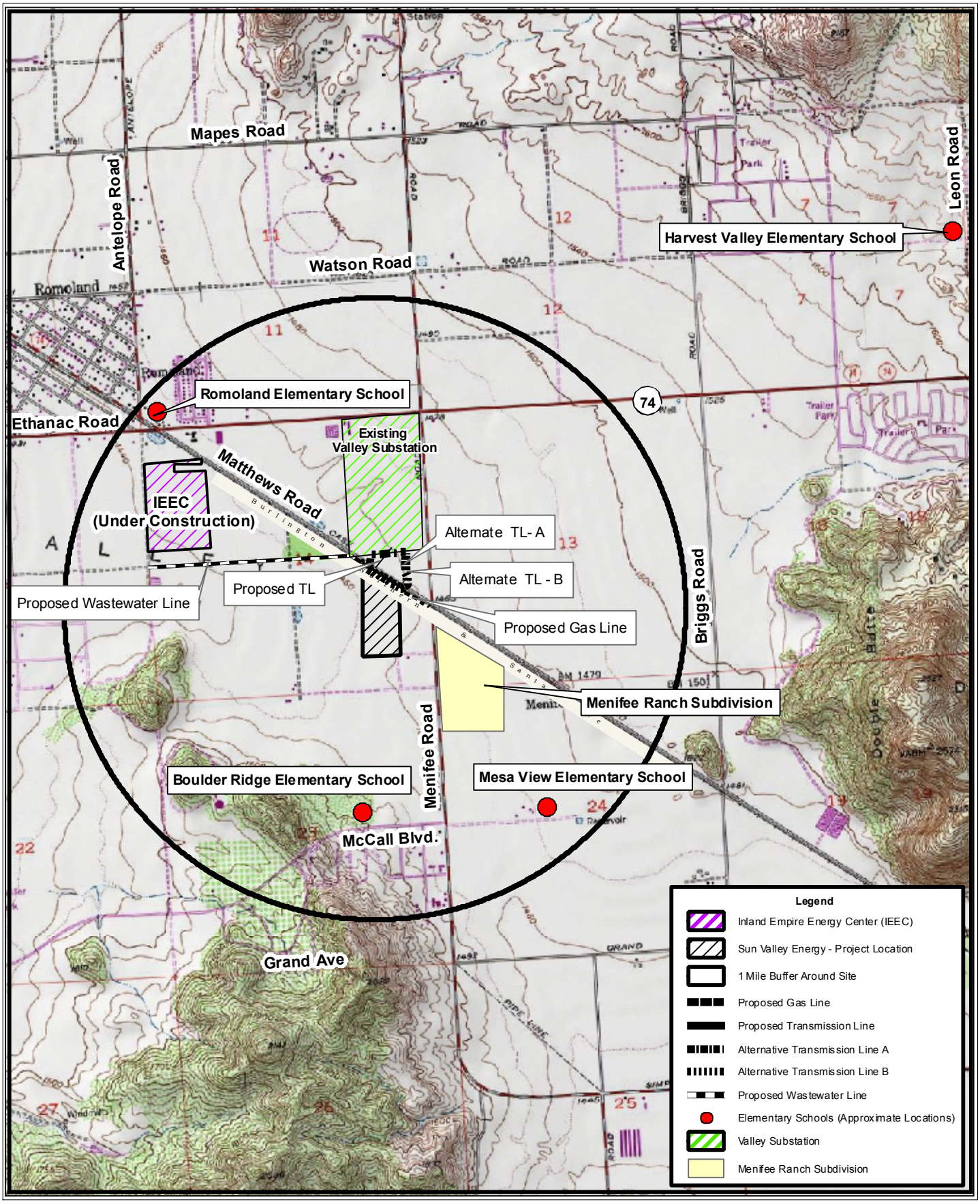


CALIFORNIA ENERGY COMMISSION, ENERGY FACILITY SITING DIVISION, APRIL 2007

SOURCE: AFC Figure 1.1-2

PROJECT DESCRIPTION - FIGURE 3

Sun Valley Energy Project - Site and Linear Facilities

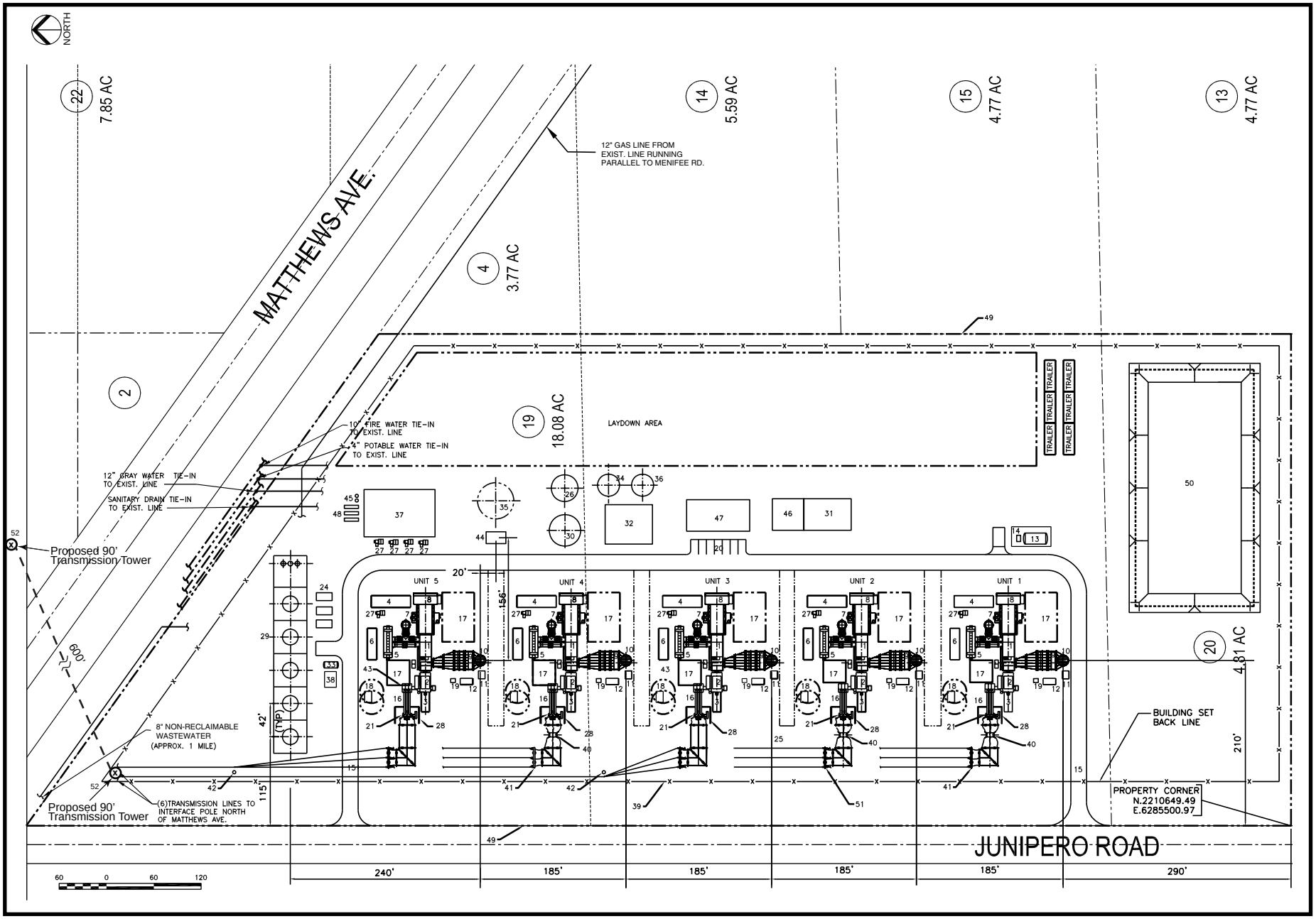


CALIFORNIA ENERGY COMMISSION - ENERGY FACILITIES SITING DIVISION, MAY 2007

SOURCE: AFC Figure 1.1-3 and Romoland School District and USGS 7.5 MINUTE QUAD Map

PROJECT DESCRIPTION - FIGURE 4A

Sun Valley Energy Project - Site Plan



CALIFORNIA ENERGY COMMISSION, ENERGY FACILITY SITING DIVISION, APRIL 2007

SOURCE: AFC Figure 2.1-1

PROJECT DESCRIPTION - FIGURE 4B
Sun Valley Energy Project - Site Plan Legend

LEGEND

1 COMBUSTION TURBINE
2 COMBUSTION TURBINE GENERATOR
3 COMBUSTION TURBINE GENERATOR ROTOR REMOVAL
4 COMBUSTION TURBINE POWER CONTROL MODULE(PCM)
5 COMBUSTION TURBINE INTER-COOLER
6 COMBUSTION TURBINE COOLING PUMP SKID
7 COMBUSTION TURBINE MECHANICAL AUXILIARY SKID
8 COMBUSTION TURBINE INLET AIR FILTER HOUSE
9 COMBUSTION TURBINE CO/SCR MODULE
10 STACK
11 CEMS ENCLOSURE
12 AMMONIA DILUTION AIR SKID
13 AMMONIA STORAGE TANK
14 AMMONIA FORWARDING PUMP SKID
15 ENTRANCE ROAD
16 ISOPHASE BUS
17 CRANE PARKING FOR TURBINE MAINT.
18 GAS FILTER/SEPARATOR SKID
19 PURGE AIR FANS
20 PARKING
21 GENERATOR STEP-UP TRANSFORMER
22 RECLAIM WATERLINE
23 30" GAS LINE (EXISTING)
24 CLOSED COOLING COOLING WATER HT. EXCH.
25 ELECTRICAL BUS COORIDOR
26 RECYCLED CHLORINATION TANK
27 AUXILIARY TRANSFORMER (QTY 4)
28 FIRE WALL
29 COOLING TOWER AND CIRCULATING WATER PUMPS
30 RECYCLE WATER STORAGE TANK
31 WAREHOUSE BUILDING
32 WATER TREATMENT/MECHANICAL COVERED AREA (MCC-05 LOCATED IN THIS AREA)
33 SULFURIC ACID STORAGE TANK
34 TREATED WATER STORAGE TANK
35 FIRE WATER TANK(FUTURE)
36 DEMINERALIZED WATER STORAGE TANK
37 GAS COMPRESSOR/AIR COMP./ELECT. BUILDING (CONTAINS 4.16KV & 480V SWGR/BOP MCC'S)
38 COOLING TOWER CHEMICAL FEED BUILDING
39 SECURITY FENCE
40 HIGH SIDE BREAKER (QTY 3)
41 DEAD END STRUCTURE (WITH DISCONNECT SWITCH BOX QTY 2)
42 INTERMEDIATE TRANMISSION POLE
43 LOW SIDE BREAKER (QTY 2)
44 FIRE PUMP SKID(FUTURE)
45 FUEL GAS SCRUBBER (QTY 2)
46 MAINTENANCE/SHOP BUILDING
47 CONTROL/ADMIN/SWITCHGEAR BUILDING (CONTAINS 13.8 KV SWITCHGEAR)
48 FUEL GAS FILTER/SEPARATOR (QTY 3)
49 PROPERTY LINE
50 STORM WATER RETENTION POND
51 H FRAME WITH DISCONNECT SWITCH (QTY 3)
52 Transmission Tower (Qty 2)

CALIFORNIA ENERGY COMMISSION, ENERGY FACILITY SITING DIVISION, APRIL 2007
SOURCE: AFC Figure 2.1-1

ENVIRONMENTAL ASSESSMENT

AIR QUALITY

Joseph M. Loyer

SUMMARY OF CONCLUSIONS

At this time, staff's analysis indicates the Sun Valley Energy Project applicant has not secured or identified sufficient emission reduction credits (ERCs) to offset the air quality emission impacts of nitrogen oxides (NOx), sulfur dioxide (SO_2), volatile organic compounds (VOC), particulate matter less than 10 microns in diameter (PM10) and particulate matter less than 2.5 microns in diameter (PM2.5). Unmitigated, these pollutants have the potential to cause significant environmental impacts. However, as discussed in this analysis, the applicant has a plan to secure adequate mitigation for all potential air quality impacts. If the applicant complies with staff's proposed Condition **AQ-SC7**, then staff believes that the project is adequately mitigated. With respect to VOC, the applicant has secured 226 lbs/day of emission reduction credits which satisfies the South Coast Air Quality Management District New Source Review requirements. However, in staff's opinion the applicant is potentially double-counting the VOC emission reduction credits as mitigating for both the Walnut Creek Energy Park (another project proposed by the applicant and currently under review) and Sun Valley Energy Project VOC emission impacts. Therefore, staff believes that the applicant needs to provide proof of adequate VOC ERCs holdings to fully offset the impacts of the Sun Valley Energy Project.

Air dispersion modeling shows that the emissions of NOx from SVEP during the test firing of the firewater pump could potentially cause or contribute to a new violation of the California 1-hour NO_2 ambient air quality standard. The applicant has previously considered emission controls for the firewater pump diesel engine. Such controls (diesel particulate traps or soot filters) are primarily designed for the reduction of PM10 emissions from diesel engines. However, they also have an effect on the emissions of NOx (20 percent to 60 percent reduction). Staff recommends that the applicant re-evaluate the potential controls application to the proposed firewater pump diesel engine in conjunction with a bypass stack.

The cumulative assessment shows that the project NOx and SOx emissions may contribute to new exceedances of the 1-hour NO_2 and 24-hour SO_2 ambient air quality standards. However, staff is not confident that the air dispersion modeling reasonably represents the cumulative impacts. The identified cumulative impacts are located inside the fence line of the near by Inland Empire Energy Center (Inland) and are dominated by the test firing of Inland's diesel firewater pump. It appears that the point of maximum impact is co-located with the firewater pump. Staff recommends that the applicant revise the air dispersion model to more accurately reflect the likely access area near the firewater pump during test firing. Furthermore, staff requests that the applicant provide a table of the six facilities modeled in the cumulative assessment with their contribution (in ug/m^3 and percent of total impact). Further refinements of the Inland firewater pump might also be necessary.

INTRODUCTION

This analysis evaluates the expected air quality impacts of the emissions of criteria air pollutants due to Valley del Sol Energy, LLC's (VSE) proposed construction and operation of the Sun Valley Energy Project (SVEP). Criteria air pollutants are defined as those air contaminants for which the state and/or federal government has established an ambient air quality standard to protect public health. The criteria pollutants analyzed are nitrogen dioxide (NO_2), sulfur dioxide ($SO_{2)}$, carbon monoxide (CO), ozone (O_3), and particulate matter (PM10 and PM2.5). In addition, volatile organic compounds (VOC) emissions are analyzed because they are precursors to both ozone (O_3) and particulate matter. Because NO_2 and SO_2 readily react in the atmosphere to form other oxides of nitrogen and sulfur respectively, the terms nitrogen oxides (NOx) and sulfur oxides (SOx) are also used when discussing these two pollutants.

In carrying out this analysis, the California Energy Commission staff evaluated the following three major points:

- Whether the SVEP is likely to conform with applicable Federal, State and South Coast Air Quality Management District (SCAQMD or District) air quality laws, ordinances, regulations and standards (Title 20, California Code of Regulations, section 1744 (b));
- Whether the SVEP is likely to cause significant new violations of ambient air quality standards or contributions to existing violations of those standards (Title 20, California Code of Regulations, section 1742 (b)); and
- Whether the mitigation proposed for the SVEP is adequate to lessen the potential impacts to a level of insignificance (Title 20, California Code of Regulations, section 1742 (b)).

LAWS, ORDINANCES, REGULATION, AND STANDARDS

The following federal, state, and local laws and policies pertain to the control of criteria pollutant emissions and mitigation of air quality impacts. Staff's analysis examines the project's compliance with these requirements.

AIR QUALITY Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable Law	Description
Federal	
40 Code of Federal Regulations (CFR) 52	Nonattainment New Source Review (NSR) requires a permit and requires Best Available Control Technology (BACT) and Offsets. Permitting and enforcement delegated to SCAQMD. Prevention of Significant Deterioration (PSD) requires major sources to obtain permits for attainment pollutants. A major source for a simple-cycle combustion turbine is defined as any one pollutant exceeding 250 tons per year. Since the emissions from the SVEP are not expected to exceed 250 tons per year, PSD does not apply.
40 CFR 60 Subpart GG	New Source Performance Standard for gas turbines: 75 parts per million (ppm) NOx and 150 ppm SOx at 15%O_2. BACT will be more restrictive. Enforcement delegated to SCAQMD.
40 CFR Part 70	Title V: Federal permit assuring compliance with all applicable Clean Air Act requirements. Title V permit application required within one year of start of operation. Permitting and enforcement delegated to SCAQMD.
40 CFR Part 72	Acid Rain Program. Requires permit and obtaining sulfur oxides credits. Permitting and enforcement delegated to SCAQMD.

State	
Health and Safety Code (HSC) Section 40910-40930	Permitting of source needs to be consistent with approved Clean Air Plan.
HSC Section 41700	Restricts emissions that would cause nuisance or injury.

Local – South Coast Air Quality Management District (SCAQMD)	
Regulation II: Permits	This regulation sets forth the regulatory framework of the application for issuance of construction and operation permits for new, altered and existing equipment.

Local – South Coast Air Quality Management District (SCAQMD)	
Regulation IV: Prohibitions	This regulation sets forth the restrictions for visible emissions, odor nuisance, fugitive dust, various air emissions, fuel contaminants, start-up/shutdown exemptions and breakdown events.
Regulation VII: Emergencies	Establishes the procedures for reporting emergencies and emergency variances.
Regulation IX: Standards of Performance for New Stationary Sources	Regulation IX incorporates provisions of 40 CFR Part 60, Chapter I, and is applicable to all new, modified, or reconstructed sources of air pollution. Sections of this regulation apply to electric utility steam generators (Subpart Da) and stationary gas turbines (Subpart GG). These subparts establish limits of PM10, SO_2, and NO_2 emissions from the facility as well as monitoring and test method requirements.
Regulation XI: Source Specific Standards	Specifies the performance standards for stationary engines larger than 50 brake horse power (bhp).
Regulation XIII: New Source Review	Establishes the pre-construction review requirements for new, modified or relocated facilities to ensure that these facilities do not interfere with progress in attainment of the national ambient air quality standards and that future economic growth in the SCAQMD is not unnecessarily restricted. However, this regulation does not apply to NOx or SOx emissions from certain sources, which are addressed by Regulation XX (RECLAIM).
Regulation XVII: Prevention of Significant Deterioration	This regulation sets forth the pre-construction requirement for stationary sources to ensure that the air quality in clean air areas does not significantly deteriorate while maintaining a margin for future industrial growth.
Regulation XX: Regional Clean Air Incentives Market (RECLAIM)	RECLAIM is designed to allow facilities flexibility in achieving emission reduction requirements for NOx and SOx through controls, equipment modifications, reformulated products, operational changes, shutdowns, other reasonable mitigation measures or the purchase of excess emission reductions.

Local – South Coast Air Quality Management District (SCAQMD)	
Regulation XXX: Title V Permits	The Title V federal program is the air pollution control permit system required by the federal Clean Air Act as amended in 1990. Regulation XXX defines the permit application and issuance as well as compliance requirements associated with the program. Any new or modified major source which qualifies as a Title V facility must obtain a Title V permit prior to construction, operation or modification of that source. Regulation XXX also integrates the Title V permit with the RECLAIM program such that a project cannot proceed without the other.
Regulation XXXI Acid Rain Permits	Title IV of the federal Clean Air Act provides for the issuance of acid rain permits for qualifying facilities. Regulation XXXI integrates the Title V program with the RECLAIM program. Regulation XXXI requires a subject facility to obtain emission allowances for SOx emissions as well as monitoring SOx, NOx, and carbon dioxide (CO_2) emissions from the facility.

SETTING

CLIMATE AND METEOROLOGY

The semi permanent high-pressure system centered off the west coast of the United States has a dominating influence on California's general climate. In the summer, this system results in low inversion layers with clear skies inland and typically early morning fog by the coast. In winter, this system promotes wind and rainstorms originating in the Gulf of Alaska and funneling these toward Northern California.

The large-scale wind flow patterns in the South Coast air basin are a diurnal cycle driven by the differences in temperature between the land and the ocean in addition to the channeling effect of the mountainous terrain surrounding the basin. The Tehachapi and Temblor mountains physically separate the air shed in the South Coast and San Joaquin Valley air basins. The San Bernardino, San Gabriel, and Santa Rosa mountain ranges generally make up the eastern boundary of the South Coast air basin. The Santa Monica and Santa Ana coastal mountain ranges make up the northern and southern boundaries (respectively).

The proposed project would be located near the unincorporated community of Romoland, Riverside County, California. Recorded temperatures from the nearest representative monitoring station (San Jacinto Station, #047810) indicate a minimum and maximum of approximately 16 degrees Fahrenheit (°F) and 116°F respectively, with

an average daily range of 51.2° to 78.9°F. The region receives most of its rainfall between November and April, with an annual average of 11.3 inches.

The wind patterns near the project site are predominately from the west north-west, with a nighttime drainage pattern yielding occasional mild air flow from the east at night. Calm conditions prevail approximately 12 percent of the time. The mixing heights, a parameter that defines the height through which pollutants released to the atmosphere are mixed, was recorded 25 miles to the south west of the project site at Los Angeles International Airport (LAX). Mixing heights at LAX varied from a minimum morning range between 335 meters (1,100 feet) and 1,000 meters (3,050 feet), to a maximum afternoon range between 510 meters (1,670 feet) and 1,200 meters (3,940 feet).

AMBIENT AIR QUALITY STANDARDS

The United States Environmental Protection Agency (U.S. EPA) and the California Air Resource Board (CARB) have both established allowable maximum ambient concentrations of criteria air pollutants based on public health impacts, called ambient air quality standards (AAQS). The state AAQS, established by CARB, are typically lower (more stringent) than the federal AAQS, established by the U.S. EPA. The state and federal air quality standards are listed in AIR QUALITY Table 2. As indicated, the averaging times for the various air quality standards (the duration over which all measurements taken are averaged) range from one hour to one year (annual). The standards are read as a concentration, in parts per million (ppm), or as a weighted mass of material per unit volume of air, in milligrams (10^{-3} g, 0.001 g, or mg) or micrograms (10^{-6} g, 0.000001 g, or µg) of pollutant in a cubic meter (m^3) of air, averaged over the applicable time period.

AIR QUALITY Table 2
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	California Standard	Federal Standard
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m^3)	--
	8 Hour	0.07 ppm (140 µg/m^3)	0.08 ppm (157 µg/m^3)
Respirable Particulate Matter (PM10)	24 Hour	50 µg/m^3	150 µg/m^3
	Annual*	20 µg/m^3	50 µg/m^3
Fine Particulate Matter (PM2.5)	24 Hour	--	35 µg/m^3
	Annual*	12 µg/m^3	15 µg/m^3
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)
	8 Hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
Nitrogen Dioxide (NO_2)	1 Hour	0.25 ppm (470 µg/m^3)	--
	Annual*	--	0.053 ppm (100 µg/m^3)
Sulfur Dioxide (SO_2)	1 Hour	0.25 ppm (655 µg/m^3)	--
	3 Hour	--	0.5 ppm (1300 µg/m^3)
	24 Hour	0.04 ppm (105 µg/m^3)	0.14 ppm (365 µg/m^3)
	Annual*	--	0.03 ppm (80 µg/m^3)
Lead	30 Day Average	1.5 µg/m^3	--
	Calendar Quarter	--	1.5 µg/m^3
Sulfates	24 Hour	25 µg/m^3	--
Hydrogen Sulfide (H_2S)	1 Hour	0.03 ppm (42 µg/m^3)	--
Vinyl Chloride (chloroethene)	24 Hour	0.010 ppm (26 µg/m^3)	--
Visibility Reducing Particulates	8 hours	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.	--
* Annual Arithmetic Mean			

Source: U.S. EPA and CARB, March 2006, note the new standard for PM2.5.

In general, an area is designated as attainment for a specific pollutant if the concentrations of that air contaminant do not exceed the standard. Likewise, an area is designated as non-attainment for an air contaminant if that standard is violated. Where not enough ambient data is available to support designation as either attainment or non-attainment, the area can be designated as unclassified. Unclassified areas are normally treated the same as attainment areas for regulatory purposes. An area can be designated as attainment for one air contaminant and non-attainment for another, or attainment for the federal standard and non-attainment for the state standard for the same contaminant. The entire area within the boundaries of an air district is usually evaluated to determine the SCAQMD attainment status.

The ambient air quality standards shown in AIR QUALITY Table 2 define the maximum amount of a pollutant that can be present in outdoor air without harm to the public's health. These standards are set at levels to adequately protect the health of all members of the public, including those most sensitive to adverse air quality impacts such as the aged, people with existing illnesses, children, and infants, and include a margin of safety.

EXISTING AMBIENT AIR QUALITY

The project is located near the unincorporated community of Romoland in Riverside County and is under the jurisdiction of the SCAQMD. AIR QUALITY Table 3 lists the attainment and non-attainment status of the district for each criteria pollutant for both the federal and state ambient air quality standards.

AIR QUALITY Table 3
Attainment / Non-Attainment Classification
South Coast Air Quality Management District (SCAQMD)

Pollutants	Federal Classification	State Classification
Ozone	**Non-Attainment**	**Non-Attainment**
PM10	**Non-Attainment**	**Non-Attainment**
PM2.5	**Non-Attainment**	**Non-Attainment**
CO	**Non-Attainment***	Attainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment

Source: CARB 2006a

* Status is expected to be changed to reflect an U.S. EPA redesignation to attainment in April 2007.

Ambient air quality data has been collected extensively in the air basin. AIR QUALITY Table 4 lists a summary of maximum ambient measurements for the years 1999 through 2005 at the monitoring stations closest to the project site.

AIR QUALITY Table 4
Criteria Pollutant Summary
Maximum Short Term Ambient Concentrations (ppm or µg/m^3)

Pollutant	Averaging Period	Units	1999	2000	2001	2002	2003	2004	2005	Limiting AAQS
Ozone	1 hour	ppm	0.14[c]	0.16[b]	0.15[b]	0.16[c]	0.17[c]	0.14[c]	0.15[a]	0.09
Ozone	8 hour	ppm	0.12[a]	0.13[b]	0.14[b]	0.12[c]	0.14[c]	0.11[c]	0.13[c]	0.07
PM10[e]	24 hours	µg/m^3	153[c]	139[c]	136[c]	126[c]	159[c]	133[c]	119[c]	50
PM2.5[f]	24 hours	µg/m^3	111[c]	120[c]	98[c]	78[c]	104[c]	94[d]	99[c]	65
CO	1 hour	ppm	4[d]	9[d]	6[d]	8[c]	5[d]	4[d]	4[d]	20
CO	8 hour	ppm	4.43[c]	4.23[d]	4.48[d]	3.75[d]	3.67[c]	2.97[c]	2.50[c]	9.0
NO_2	1 hour	ppm	0.13[c]	0.09[c]	0.15[c]	0.10[c]	0.10[c]	0.09[c]	0.08[c]	0.25
SO_2	1 hour	ppm	0.03[c]	0.11[c]	0.02[c]	0.02[c]	0.02[c]	0.02[c]	0.02[c]	0.25
SO_2	24 hour	ppm	0.01[c]	0.04[c]	0.01[c]	0.003[c]	0.01[c]	0.02[c]	0.01[c]	0.04

Note: a) Lake Elsinore –W Flint Street Ambient Air Quality Monitoring Station
b) Perris Ambient Air Quality Monitoring Station
c) Riverside-Rubidoux Ambient Air Quality Monitoring Station
d) Riverside-Magnolia Ambient Air Quality Monitoring Station
e) Maximum PM10 concentration based on California monitoring methodology.
f) Maximum PM2.5 concentration based on national monitoring methodology.

Source: CARB 2006b

Comparison of the values in AIR QUALITY Table 4 to the most restrictive AAQS in AIR QUALITY Table 2 clearly shows that ozone, PM10, and PM2.5 continue to violate applicable standards while NO_2 and SO_2 do not violate the standards. Though no CO violations were recorded at the monitoring station closest to the proposed project site over this six year period, violations were recorded at two other monitoring sites in the region in three of the last six years (at Lynwood in1999, at Lynwood and Reseda in 2000, and at Lynwood in 2002). However, because no violations were recorded at any location in the district in 2003 and 2004, the district has requested reclassification to attainment of the federal standards for CO. On February 14, 2007, the U.S. EPA published their intent to reclassify the SCAQMD to attainment for the federal CO ambient air quality standards. The U.S. EPA process may take 30 days, or more, to finalize that reclassification.

Attainment Criteria Pollutants

Although both NO_2 and SO_2 are classified as in attainment with all State and Federal AAQS, they remain of significant concern since they are precursors to PM10, and NO_2 is a precursor to ozone. Because NO_2 and SO_2 are precursors to non-attainment pollutants, the district will require full offset mitigation for both.

Nitrogen Dioxide (NO_2)

Most combustion activities and engines emit significant quantities of nitrogen oxides (NOx), a term used in reference to combined quantities of nitrogen oxide (NO) and NO_2. Most of the NOx emitted from combustion sources is NO. Although only NO_2 is a criteria pollutant, NO is readily oxidized in the atmosphere into NO_2. In urban areas, the ozone concentration level is typically high. That level will drop substantially at night as NO is

oxidized into NO_2, and increase again in the daytime as sunlight disassociates NO_2 into NO and ozone. This reaction explains why urban ozone concentrations at ground level can be relatively low, while downwind rural areas (without sources of fresh NO emissions) are exposed to higher ozone concentrations as arriving NO_2 dissociates into NO and ozone in the presence of sunlight.

Sulfur Dioxide (SO_2)

Sulfur dioxide is typically emitted as a result of the combustion of fuels containing sulfur. In significant ambient quantities, SO_2 can lead to acid rain and sulfite particulate formation. Natural gas contains very little sulfur and consequently results in very little SO_2 emissions when combusted. By contrast, fuels high in sulfur, such as lignite (a type of coal), emit large amounts of SO_2 when combusted. Sources of SO_2 emissions within the basin come from every economic sector and include a wide variety of gaseous, liquid and solid fuels.

Non-Attainment Criteria Pollutants

The following sections provide background for the non-attainment criteria pollutants: ozone, PM10, PM2.5, and CO.

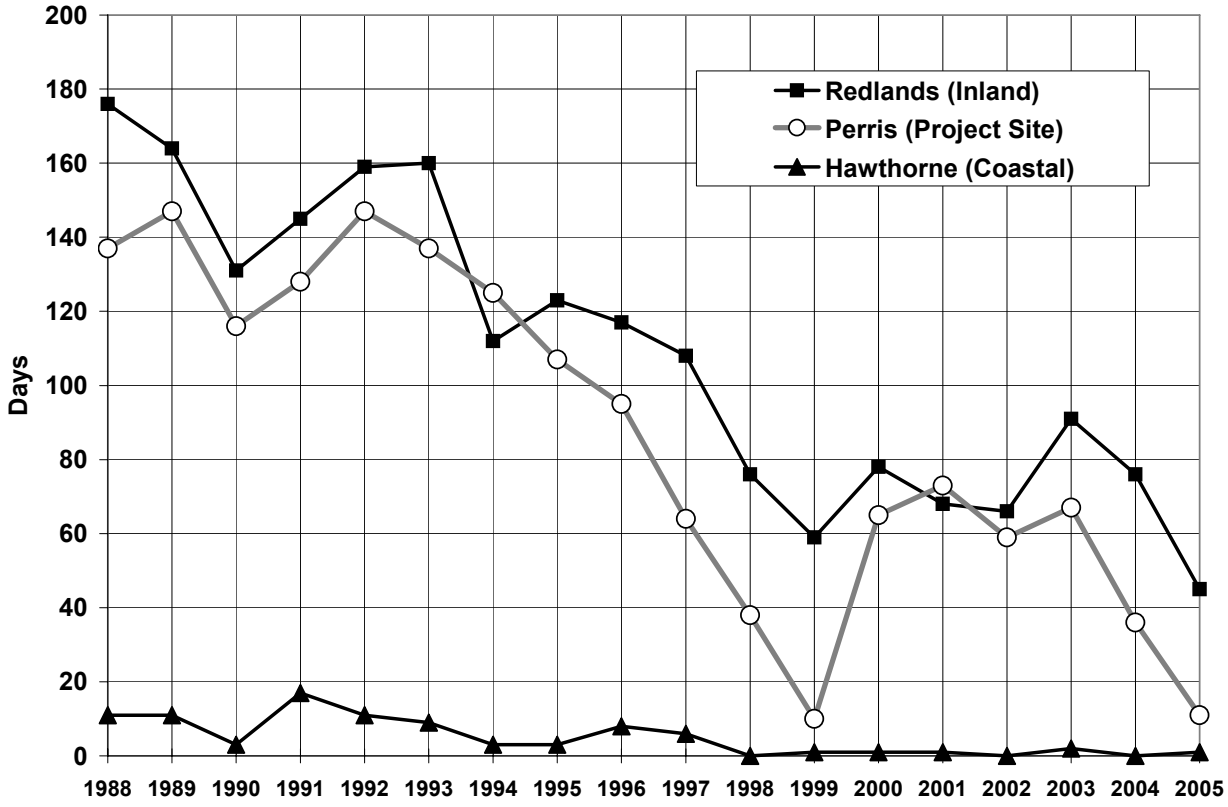
Ozone (O_3)

Ozone is not directly emitted from stationary or mobile sources, but is formed as the result of chemical reactions in the atmosphere between precursor air pollutants. The primary ozone precursors are NOx and VOC, both of which interact in the presence of sunlight to form ozone.

The SCAQMD is designated as serious-17 non-attainment for ozone (the second worst possible classification), meaning that the South Coast air basin ambient ozone design concentration is 0.280 ppm or above and it will not reach attainment before 2007. Efforts to achieve ozone attainment typically focus on controlling the ozone precursors NOx and VOC. SCAQMD published state implementation plans (SIP) rely on the CARB to control mobile sources, the U.S. EPA to control emission sources under federal jurisdiction, and SCAQMD to control local industrial sources. Through these control measures, California and the SCAQMD are required to reach attainment of the federal ozone ambient air quality standard by 2010.

Exceedances of the national and state ozone ambient air quality standards occur in the region both up wind and down wind of the project site. AIR QUALITY Figure 1 shows the number of days each year on which exceedances of the state 1-hour ozone standard occurred for three representative monitoring sites. The three monitoring sites were chosen to represent three distinct parts of the air shed: coastal region, proposed project region, and inland region.

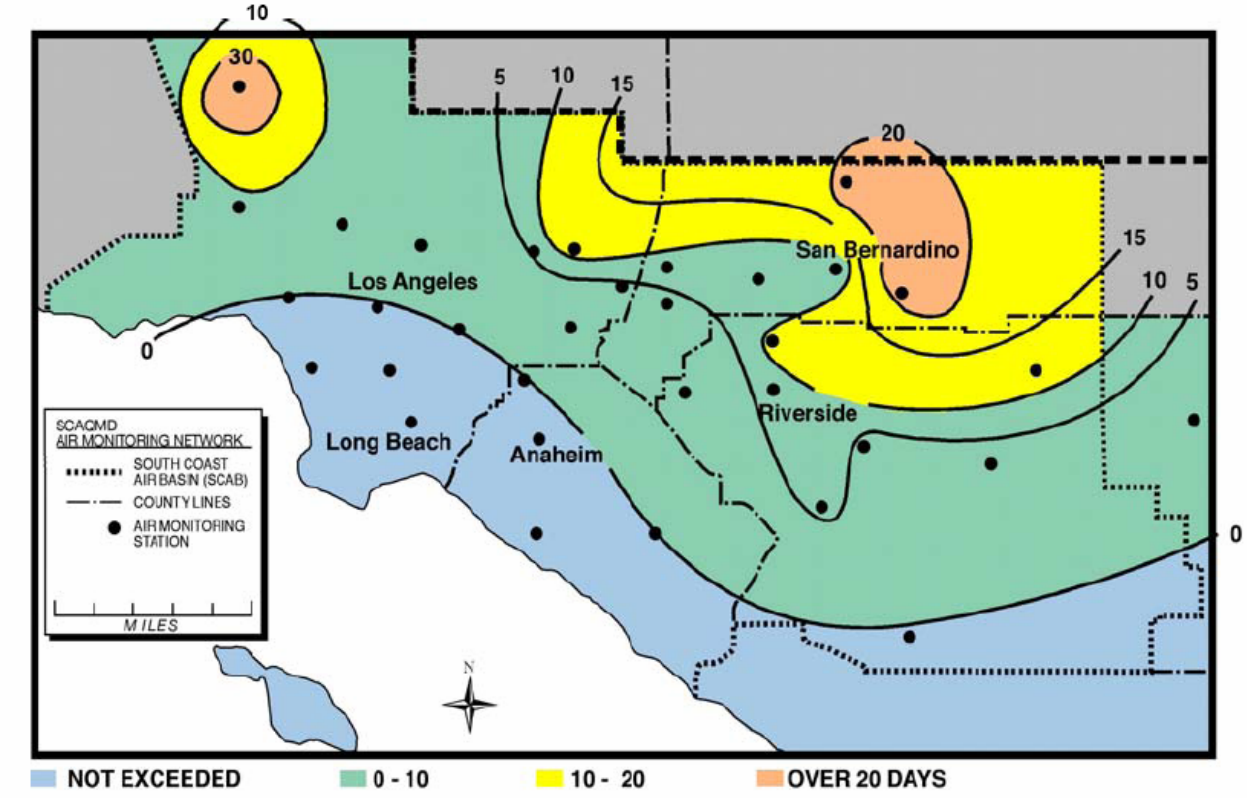
AIR QUALITY Figure 1
OZONE 1988-2004
Number of Days Exceeding the State 1-Hour AAQS



Source: CARB 2006b

The proposed project area (represented in AIR QUALITY Figure 1 by the Perris monitoring station) is in an area very near the inland regions of the SCAQMD. The data clearly shows the characteristic trend to higher ambient ozone concentrations farther away from the coast, due to prevailing onshore airflow. AIR QUALITY Figure 2 provides a graphical representation of this effect for a single year, showing how the onshore airflow pushes pollution inland and thus focuses regional violations away from the coast.

AIR QUALITY Figure 2
OZONE – 2002
Number of Days Exceeding 1-Hour Federal Standard
(1-hour average ozone > 0.12 ppm)



Source: SCAQMD 2003

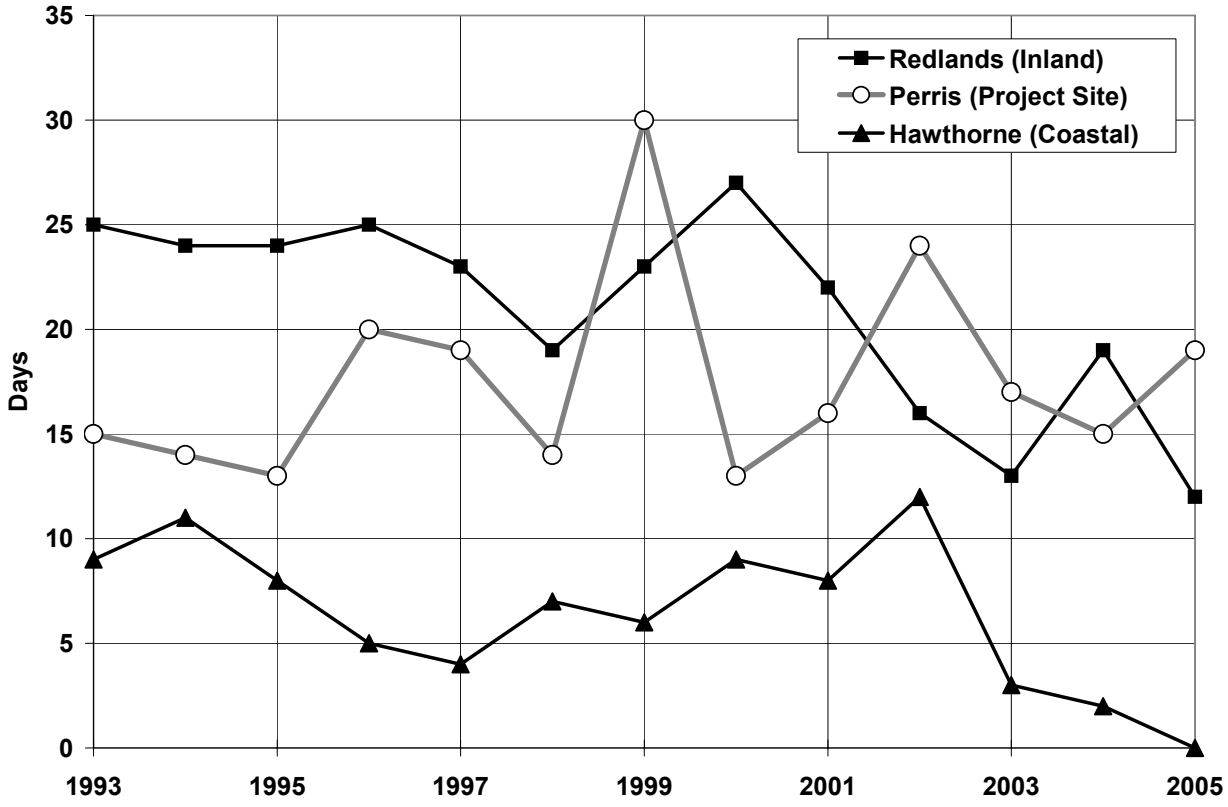
Though there are a significant number of exceedances of the ozone ambient air quality standards throughout the district, it is important to consider the improvements that have occurred in recent years. The SCAQMD leads the nation in air quality management methods and regulatory programs. These programs have significantly improved the air quality in spite of the growing population and industrial and commercial enterprises. AIR QUALITY Figure 1 clearly shows the improvements in ozone air quality levels over the past 16 years in the South Coast air basin, especially in the intermediate region near the proposed project site. As shown in AIR QUALITY Figure 1, in 2003 there was a slight increase over prior years in the number of exceedances recorded. Since 2003, however, the downward trend has returned, approaching the 2002 lower number of exceedances.

Respirable Particulate Matter (PM10)

PM10 is generated both directly from a combustion process and generated downwind of a source when various emitted precursor pollutants chemically interact in the atmosphere to form solid precipitates. These solids are called secondary particulates, because they are not directly emitted, but are still generated as a consequence of facility emissions. Gaseous emissions of pollutants such as NOx, SO_2, and VOC from turbines, and ammonia (NH_3) from NOx control equipment can form particulate nitrates, sulfates, and organic solids.

San Bernardino County (not the entire South Coast air basin) has been designated a non-attainment zone for the federal 24-hour and annual PM10 ambient air quality standards. The South Coast air basin (including a portion of San Bernardino County within the basin) has been designated as a non-attainment zone for the state 24-hour and annual PM10 ambient air quality standards. AIR QUALITY Figure 3 below shows the number of days each year on which exceedances of the state 24-hour PM10 standard occurred for three representative monitoring regions: coastal, project site, and inland.

AIR QUALITY Figure 3
PM10 1993-2004
Number of Days Exceeding the State 24-Hour AAQS



Source: CARB 2006b

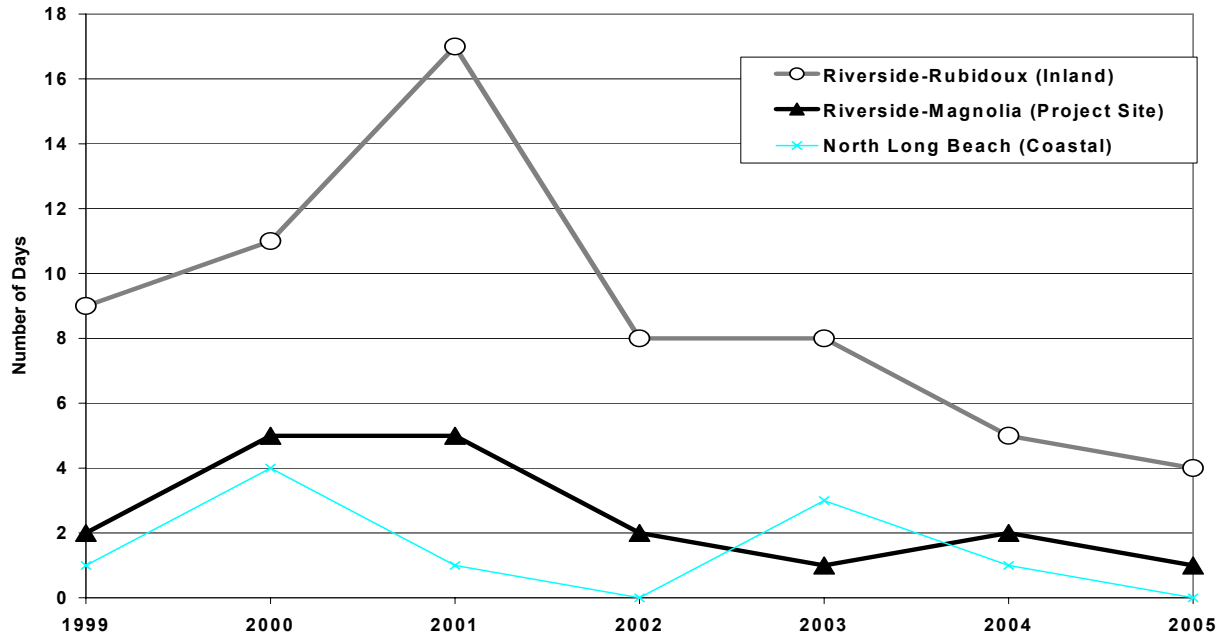
The data shows some improvement over the period, but overall the PM10 situation remains a concern.

Fine Particulate Matter (PM2.5)

PM2.5, a subset of PM10, consists of particles with an aerodynamic diameter less than or equal to 2.5 microns. Particles within the PM2.5 fraction penetrate more deeply into the lungs, and can be much more damaging by weight than larger particulates. PM2.5 is primarily a product of combustion and includes nitrates, sulfates, organic carbon (ultra fine dust) and elemental carbon (ultra fine soot). AIR QUALITY Figure 4 below shows the number of days each year on which exceedances of the federal 24-hour PM2.5 standard of 65 ug/m^3 (there is no separate short-term state standard) occurred for three

representative monitoring regions: coastal, project site, and inland. The federal 24-hour PM2.5 standard has recently been lowered to 35 ug/m^3. Staff is working through the ambient air quality measurement data from CARB to develop the "Number of Days Exceeding" necessary to correct this graph. That data will be available for the Final Staff Assessment.

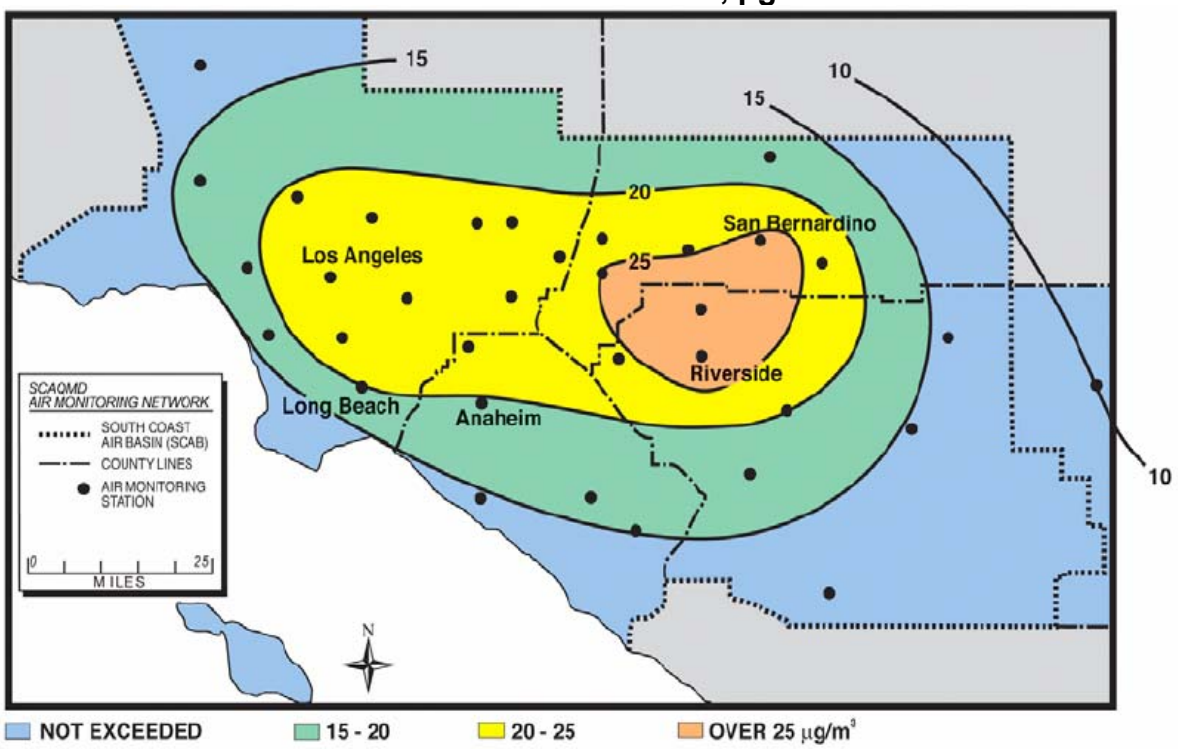
AIR QUALITY Figure 4
PM2.5 1999-2004
Number of Days Exceeding the Federal 24-Hour AAQS



Source: CARB 2006b

The highest concentrations of PM2.5 in the SCAQMD occur within the counties of San Bernardino and Riverside (similarly to PM10), but also extend west toward downtown Los Angeles. This effect is shown graphically in AIR QUALITY Figure 5 below.

AIR QUALITY Figure 5
PM2.5 – 2002
Annual Arithmetic Mean, µg/m^3



Source: SCAQMD 2003

PM2.5 standards were first adopted by U.S. EPA in 1997, and were upheld by the United States Supreme Court in 2001 over a challenge from the American Trucking Association (ATA et al). Though SCAQMD is designated as non-attainment for all state and federal PM2.5 AAQS, the SCAQMD has not yet finished preparing a PM2.5 SIP. The SCAQMD expects to submit a PM2.5 SIP in late 2007, and once the plan is approved by USEPA, the SCAQMD will prepare revised NSR rules that will likely require offsetting of PM2.5 emissions. The SCAQMD is thus unlikely to address PM2.5 in their rules within the schedule of this proposed project. Staff, however, has a California Environmental Quality Act (CEQA) responsibility to address PM2.5 emissions since there are current ambient air quality standards in effect and the proposed project region is not in attainment of those standards.

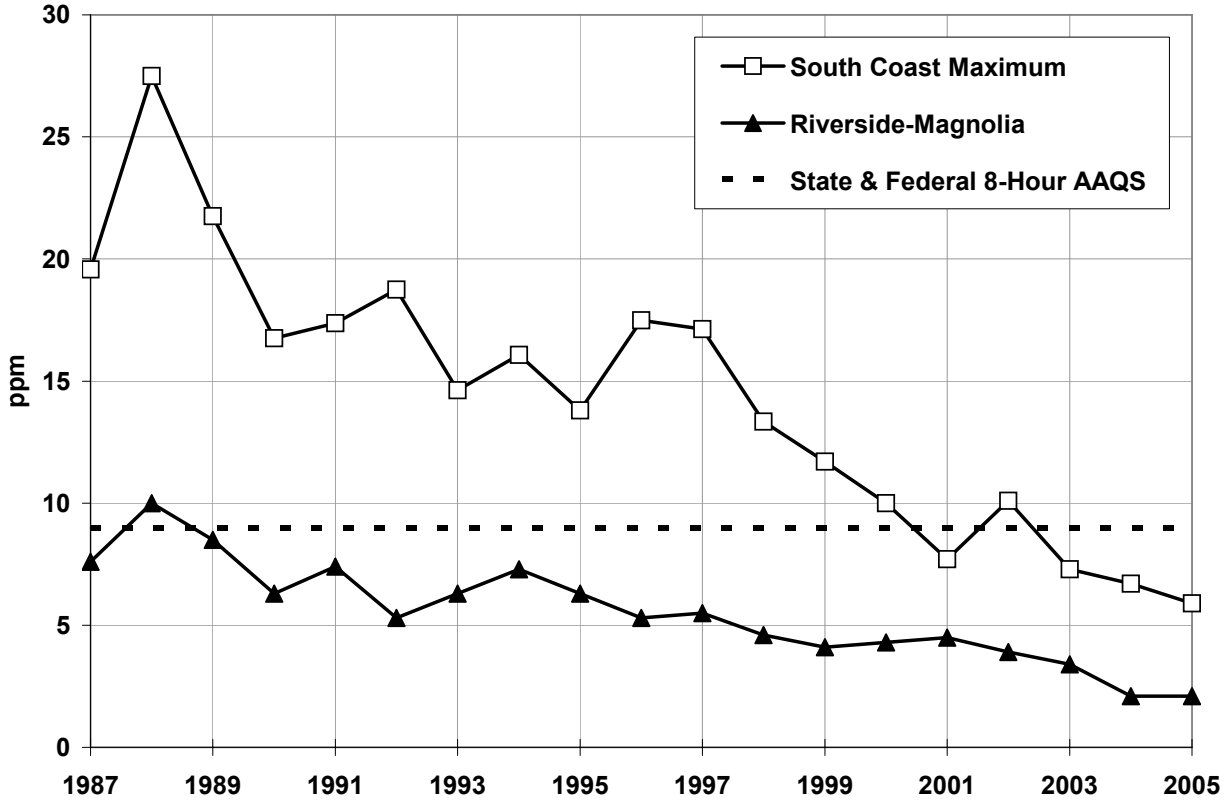
Carbon Monoxide (CO)

CO is generated from most combustion engines and other combustion activities. CO is considered a local pollutant, as it will rapidly oxidize. It is thus found in high concentrations only near the source of emissions. Automobiles and other mobile sources are the principal source of CO emissions. High levels of CO emissions can also be generated from fireplaces and wood-burning stoves. Industrial sources, including power plants, typically constitute less than 10 percent of the ambient CO levels in the South Coast region (CARB 2006c).

The highest concentrations of CO occur when low wind speeds and a stable atmosphere trap the pollution emitted at or near ground level in what is known as the stable boundary layer. These conditions occur frequently in the wintertime late in the afternoon, persist during the night and may extend one or two hours after sunrise. Because the mobile sector (ships, cars, trucks, busses and other vehicles) is the main source of CO, ambient concentrations of CO are highly dependent on traffic patterns. Carbon monoxide concentrations in the state have declined significantly due to two state-wide programs: 1) the 1992 wintertime oxygenated gasoline program, and 2) Phases I and II of the reformulated gasoline program. New vehicles with oxygen sensors and fuel injection systems have also contributed to the decline in CO levels in the state. Today, all the counties in California, with the sole exception of Los Angeles County, are in compliance with the state CO AAQS.

AIR QUALITY Figure 6 below shows the maximum 8-hour average CO measurements at the closest monitoring station (Riverside-Magnolia) to the project site and the maximum for the entire South Coast district.

AIR QUALITY Figure 6
CO 1985-2004
Maximum 8-hour Average Concentration



Source: CARB 2006b

Existing Ambient Air Quality Summary

Based on the above analysis of background ambient air quality, staff recommends the background ambient air concentrations in AIR QUALITY Table 5 for the purpose of modeling and evaluating potential ambient air quality impacts from the proposed project.

AIR QUALITY Table 5
Staff Recommended Background Concentrations (µg/m^3)

Pollutant	Averaging Time	Recommended Background	Limiting Standard	Percent of Standard
NO_2	1 hour	282[c]	470	60
	Annual	46.6[c]	100	47
CO	1 hour	9,200[c]	23,000	40
	8 hour	4,978[d]	10,000	50
PM10[e]	24 hour	159[c]	50	**318**
	Annual	63.1[c]	30	**210**
PM2.5[f]	24 hour	104[c]	65	**160**
	Annual	31.1[c]	12	**259**
SO_2	1 hour	52.4[c]	655	8
	24 hour	52.5[c]	105	50
	Annual	8.0[c]	80	10

Note: a) Lake Elsinore –W Flint Street Ambient Air Quality Monitoring Station
b) Perris Ambient Air Quality Monitoring Station
c) Riverside-Rubidoux Ambient Air Quality Monitoring Station
d) Riverside-Magnolia Ambient Air Quality Monitoring Station
e) Maximum PM10 concentration based on California monitoring methodology.
f) Maximum PM2.5 concentration based on national monitoring methodology.

Source: CARB 2006b

PROJECT DESCRIPTION AND PROPOSED EMISSIONS

The proposed SVEP major air emissions sources are:

- Five General Electric (GE) LMS100 combustion turbine generators (CTG)
- Oxidation catalyst (OC) and selective catalytic reduction (SCR) equipment
- A five cell mechanical draft cooling tower
- A 340 brake horsepower (bhp) diesel emergency fire pump engine

The potential emissions from the facility are classified in three categories: construction, initial commissioning, and operation.

Construction Emissions

Facility construction is expected to take about 12 months. The power plant project construction consists of three major areas of activity: 1) the civil/structural construction 2) the mechanical construction, and 3) the electrical construction. The projected maximum daily and annual emissions, based on the highest monthly emissions over the entire construction period, are shown in AIR QUALITY Table 6.

AIR QUALITY Table 6
Estimated Maximum Construction Emissions

	NOx	SO_2	CO	VOC	PM10
Maximum Daily Emissions (lb/day)	150.2	11.7	122.6	20.6	7.4
Maximum Annual Emissions (tons/year)	14.3	0.6	13.5	1.9	0.5

Source: VSE 2005a, Appendix 8.1E.3

The largest percentage of these construction emissions will likely be emitted during the first phase of project site activity, mostly due to earth moving, grading activities, large equipment operations, underground utility installation, and as building erection occurs. These types of activities require the use of large earth moving equipment, which generate considerable direct combustion emissions, along with fugitive dust emissions. The mechanical construction phase includes the installation of the heavy equipment such as the gas turbines, compressors, pumps, and associated piping. Although not a large fugitive dust generation activity, the use of large cranes to install such equipment generates significantly more direct combustion emissions than other construction equipment. Lastly, the electrical construction phase involves installation of transformers, switching gear, instrumentation, and all wiring; and is a relatively small source of emissions in comparison to the earlier construction activities.

Initial Commissioning Emissions

New power generation facilities must go through an initial firing and commissioning phase before being deemed commercially available to generate power. During this period, emissions may exceed permitted levels due to numerous startups and shutdowns, periods of low load operation, and other testing required before emission control systems are fine-tuned for optimum performance.

The applicant anticipates six distinct commissioning phases (VSE 2005a, p. 8.1-62), with a total of approximately 94 hours of operation per turbine without full emissions controls, and a further 300 hours per turbine of commissioning tuning under full emissions control. AIR QUALITY Table 7 presents the predicted maximum short term emissions of NOx, CO, and VOC. PM10 and SO_2 emissions are not included here since they are proportional to fuel use, and fuel use (and thus PM10 and SO_2 emissions) during commissioning is equal to or lower than during full load operations.

AIR QUALITY Table 7
Estimated Maximum Initial Commissioning Emissions

	NOx	CO	VOC
Maximum Hourly Emissions (lb/hour)	175	255	5

Source: VSE 2005a, Appendix Table 8.1A-10

Operation Emission Controls

NOx Controls

Each combustion turbine generator (CTG) exhaust will be treated by an ammonia injected selective catalytic reactor (SCR) system before release to the atmosphere. SCR refers to a process that chemically reduces NOx to elemental nitrogen and water vapor by injecting ammonia into the flue gas stream in the presence of a catalyst and excess oxygen. The process is termed selective because the ammonia preferentially reacts with NOx rather than oxygen. The catalyst material most commonly used is titanium dioxide, but materials such as vanadium pentoxide, zeolite, or noble metals are also used. Regardless of the type of catalyst used, efficient conversion of NOx to nitrogen and water vapor requires uniform mixing of ammonia into the exhaust gas stream and a catalyst surface large enough to ensure sufficient time for the reaction to take place.

VOC and CO Controls

VOC and CO will be controlled at the CTG combustor and by an oxidation catalyst. An oxidation catalyst system chemically reacts organic compounds and CO with excess oxygen to form nontoxic carbon dioxide and water. Unlike the SCR system for reducing NOx, an oxidation catalyst does not require any additional chemicals.

PM10 and SO_2 Controls

The exclusive use of natural gas, an inherently clean fuel that contains very little noncombustible solid residue, will limit the formation of SO_2 and PM10. Natural gas does contain small amounts of a sulfur-based scenting compound known as mercaptan which results in sulfur dioxide emissions when combusted. However, in comparison to other fuels used in modern thermal power plants, such as fuel oil or coal, the sulfur dioxide produced from the combustion of natural gas is very low. Like SO_2, the emission of PM10 from natural gas combustion is also very low compared to the combustion of fuel oil or coal. It is assumed in these calculations that the natural gas has a maximum short term sulfur content of 0.75 gr/100scf (grains per 100 cubic feet at standard temperature and pressure), based on Southern California Gas Company rules for pipeline quality natural gas, and an annual average sulfur content of 0.25 gr/100scf, based on a monthly gas sampling requirement at the SVEP.

The majority of the emissions from cooling towers are pure water vapor; however, a small amount of liquid water can escape and is known as "drift". Cooling tower drift consists of a mist of very small water droplets, which can generate particulate matter that originates from the dissolved solids in the circulating water once the water evaporates. To limit these particulate emissions, cooling towers use drift eliminators to capture these water droplets, and cooling tower operators are required to monitor the

total dissolved solids (TDS) in the cooling tower recirculation water to ensure that it does not exceed a SCAQMD specified value. The applicant intends to use drift eliminators on the cooling towers designed to limit drift to 0.0005 percent of the circulating water volume per unit time.

Proposed Operation Emissions

Per the applicant's request, all emissions calculations and limitations are based on an assumed availability of 3,200 hours per year, plus 350 startups and shutdowns, though staff is not proposing an hours of operation limitation (VSE 2006a). VSE has estimated their capacity factor at 40 percent; which would be equivalent to just over 3,500 hours of operation, which is reasonably consistent with the assumed hours of operation. The CTGs will burn only pipeline natural gas; there are no provisions for an alternative or back-up fuel.

The proposed maximum criteria air pollutant emissions are based entirely on vendor data for the GE LMS100 turbine and the data presented in the SCAQMD Preliminary Determination of Compliance (SCAQMD 2006b). AIR QUALITY Table 8 lists the maximum 1-hour emissions from each piece of equipment on the proposed project site.

AIR QUALITY Table 8
Equipment Maximum Short-Term Emissions Rates
(pounds per hour [lb/hr])

Process Description	NOx	SO_2	CO	VOC	PM10
CTG Startup (35 minute startup, **lb/event**)	7.00	0.35	15.40	2.10	3.50
CTG Full Load	8.21	0.61	12.00	1.71	6.00
CTG Shutdown (11 minute shutdown, **lb/event**)	4.30	0.11	18.20	1.60	1.10
Fire Pump Engine	10.54	0.004	0.202	0.112	0.067
Cooling Tower	0	0	0	0	0.44

Source: VSE 2005a, SCAQMD 2006b and Energy Commission staff calculations

Based on these emissions rates, the maximum possible 1-hour emissions from the entire facility would occur when all five turbines start-up and then operate at full load for the remainder of the hour, concurrent with a test of the fire pump engine. AIR QUALITY Table 9 below presents this scenario as the facility wide maximum potential short-term emissions. AIR QUALITY Table 10 presents the more common maximum full load emissions scenario (the difference being the absence of startups, shutdowns and fire pump engine testing).

AIR QUALITY Table 9
Facility Maximum 1-hour Emissions
(pounds per hour [lb/hr])

Process Description	NOx	SO_2	CO	VOC	PM10
5 CTGs Startup (35 minutes each)	35.00	1.77	77.00	10.50	17.50
5 CTGs Full Load (25 minutes each)	17.10	1.26	25.00	3.56	12.50
Fire Pump Engine (1 hour)	10.54	0.00	0.20	0.11	0.0674
Cooling Tower (1 hour)	0.00	0.00	0.00	0.00	0.4439
Total Maximum 1-hour Emissions	62.64	3.03	102.20	14.17	30.51

Source: Energy Commission staff calculations

AIR QUALITY Table 10
Facility 1-hour Full Load Emissions
(pounds per hour [lb/hr])

Process Description	NOx	SO_2	CO	VOC	PM10
5 CTGs Full Load	41.05	3.03	60.00	8.55	30.00
Cooling Tower (1 hour)	0.00	0.00	0.00	0.00	0.44
Total Full Load 1-hour Emissions	41.05	3.03	60.00	8.55	30.44

Source: Energy Commission staff calculations

In general, higher emissions of NOx, VOC and CO will occur during the startup and shutdown of a large CTG because the turbine combustors are designed for maximum efficiency during full load, steady state operation. During startup, combustion temperatures and pressures change rapidly, resulting in less efficient combustion and higher emissions. Also, flue gas emission controls (the catalysts discussed above), operate most efficiently when a turbine operates at or near full load temperatures. The maximum daily emission rates for NOx, CO, and VOC were conservatively estimated for each power train based on 22 hours and 28 minutes of operation, two 35 minute startups, and two 11 minute shutdowns per turbine. The maximum daily emission rates for PM10 and SO_2 were based instead on 24 hours of full load operation, since PM10 and SO_2 emissions are proportional to fuel use. The total project maximum daily emissions are then conservatively estimated as the sum of the emissions from all five power trains, the cooling tower, and a single hour of emergency fire pump operation for required weekly testing purposes. These estimates are presented in AIR QUALITY Table 11 below.

AIR QUALITY Table 11
Project Maximum Daily Emissions
(pounds per day [lb/day])

Process Description	NOx	SO_2	CO	VOC	PM10
10 CTG Cold Starts (0:35 hour each)	70.00	3.54	154.00	21.00	35.00
5 CTG Full Load (22:28 hours each)	922.26	68.07	1,348.00	192.09	674.00
10 CTG Shutdowns (0:11 hour each)	43.00	1.11	182.00	16.00	11.00
1 hour Fire Pump Engine testing	10.54	0.00	0.20	0.11	0.07
24 hours Cooling Tower	0.00	0.00	0.00	0.00	10.65
Total Maximum Daily Emissions	1,045.80	72.72	1,684.20	229.20	730.72

Source: Energy Commission Staff calculations

The expected maximum annual emissions from each turbine are summarized in AIR QUALITY Table 12, and the total facility expected maximum annual emissions is summarized in AIR QUALITY Table 13. The calculations assume 3200 hours of operation, 350 startups, and 350 shutdowns per turbine. The facility annual emissions further assume 3200 hours of cooling tower operation, 50 hours of emergency fire pump testing and 50 hours of diesel generator testing. In addition, the calculations for annual SO_2 emissions assume annual average fuel sulfur content of 0.25 gr/100 scf.

AIR QUALITY Table 12
Turbine Maximum Annual Emissions
(pounds per year [lb/yr])

Process Description	NOx	SO_2	CO	VOC	PM10
350 Startups	3,647	212	7,140	984	2,100
350 Shutdowns	22,725	212	9,800	1,050	2,100
3200 hours Full Load	3,850	1,677	33,216	4,733	16,608
Total Maximum per Turbine	30,222	2,101	50,156	6,767	20,808

Source: Energy Commission Staff calculations

AIR QUALITY Table 13
Project Maximum Annual Emissions
(pounds per year [lb/yr] and tons per year [tpy])

Process Description	NOx	SO_2	CO	VOC	PM10
5 Turbines (lb/yr)	151,110	10,505	250,780	33,835	104,040
Fire Pump Diesel Engine (199 hours) (lb/yr)	2097.46	0.82	40.24	22.35	13.41
Cooling Tower (lb/yr)	0.00	0.00	0.00	0.00	1,539.6
Total Maximum Annual Emissions (lb/yr)	153,207.5	10,505.8	250,820.2	33,857.4	105,593.8
Total Maximum Annual Emissions (tpy)	76.6	5.25	125.4	16.9	52.8

Source: Energy Commission Staff calculations and VSE 2005a

Ammonia Emissions

To control NOx emissions from the combustion turbines, ammonia is injected into the flue gas stream as part of the SCR system. In the presence of the catalyst, the ammonia and NOx react to form harmless elemental nitrogen and water vapor. However, not all of the ammonia reacts with the flue gases to reduce NOx; a portion of the ammonia passes through the SCR and is emitted unaltered from the stacks. These ammonia emissions are known as ammonia slip. It should be noted that a maximum permitted ammonia slip rate only occurs after significant degradation of the SCR catalyst, usually five years or more after commencing operations. At that point, the SCR catalysts are removed and replaced with new catalysts. During the majority of the operational life of the SCR system, actual ammonia slip will be at 10 to 50 percent of the permitted limit. The applicant proposes an ammonia emissions limit of five ppm at 15 percent oxygen averaged over one hour for the SVEP.

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

Staff assesses potential impacts from the construction and operation of the proposed project, and also analyzes the cumulative effects of this project with past, present, and reasonably foreseeable projects that are sources of similar emissions. Construction impacts result from the emissions occurring during the construction of the project. The operation impacts result from the emissions over the proposed lifetime of the project. The cumulative impacts analysis includes projections regarding the conditions contributing to cumulative impacts as reflected in the district's adopted attainment plan, a summary of expected environmental impacts from related projects in the region, and an analysis of those impacts from a cumulative standpoint.

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

Staff has used two main significance criteria in evaluating this project. First, all project emissions of nonattainment criteria pollutants and their precursors (NOx, VOC, CO, PM10, PM2.5, and SO_2) are considered significant and must be mitigated. Second, any AAQS violation or any contribution to any AAQS violation caused by any project emissions are considered significant and must be mitigated. For construction emissions, the mitigation is limited to controlling construction equipment tailpipe emissions and fugitive dust emissions to the maximum extent feasible. For operating emissions, the mitigation includes both the best available control technology (BACT) and the use of emission reduction credits (ERC) or other valid emission reductions to offset emissions of nonattainment criteria pollutants and their precursors.

The ambient air quality standards that staff uses as a basis for determining project significance are health-based standards established by the CARB and USEPA. They are set at levels to adequately protect the health of all members of the public, including those most sensitive to adverse air quality impacts such as the aged, people with existing illnesses, children, and infants, and include a margin of safety.

DIRECT/INDIRECT IMPACTS AND MITIGATION

While the emissions are the actual mass of pollutants emitted from the project, the impacts are the concentration of pollutants from the project that reach ground level. When emissions are expelled at a high temperature and velocity through the relatively tall stack, the pollutants will be significantly diluted by the time they reach ground level. The emissions from the proposed project are analyzed through the use of air dispersion models to determine the probable impacts at ground level.

Air dispersion models provide a means of predicting the location and ground level magnitude of the impacts of a new emissions source. These models consist of a complex series of mathematical equations, which are repeatedly evaluated by a computer for many different sets of ambient conditions and input parameters. The model results are often described as a maximum theoretical concentration of pollutant in the air to which people could be exposed, or units of mass per volume of air, such as micrograms per cubic meter ($\mu g/m^3$).

In general, the input parameters for the modeling include stack information (exhaust flow rate, temperature, and stack dimensions), specific turbine emission data, and

meteorological data, such as wind speed, atmospheric conditions, and site elevation. For this project, the meteorological data used as inputs to the model included hourly wind speeds and directions measured at the Riverside meteorological station, and background criteria pollutant measurements from a number of SCAQMD maintained ambient monitoring stations in the vicinity of the project site (VSE 2005a, Section 8.1.1.3.2, p. 8.1-20).

The applicant used the U.S. EPA approved Industrial Source Complex Short Term model (ISCST3), version 02035, as both a screening and refined model to estimate the direct impacts of the project's NOx, PM10, CO, and SO_2 emissions resulting from project construction and operation. A description of the modeling analysis and its results are provided in Section 8.1.2.3 and Appendix 8.1 of the Application for Certification (AFC) (VSE 2005a). ISCST3 is a generally accepted model for this type of project, and the meteorological input data is sufficient. Staff added the applicant's modeled impacts to the available highest ambient background concentrations recorded during the previous three years from nearby monitoring stations. The results were then compared with the ambient air quality standards for each respective air contaminant to determine whether the project's emission impacts would cause a new violation of the ambient air quality standards or contribute to an existing violation.

Construction Impacts and Mitigation

Construction Impact Analysis

The construction air quality impact analyses prepared by the applicant considered both fugitive dust generated from the construction activity and combustion emissions produced by construction equipment. As a conservative assumption, this includes the following major sources (VSE 2005a, Appendix 8.1E):

- Dust entrained during site preparation and finish grading
- Dust entrained during onsite travel on paved and unpaved surfaces
- Dust entrained during aggregate and soil loading and unloading operations
- Dust caused by wind erosion of areas disturbed during construction
- Exhaust from diesel construction equipment used for site preparation, grading, excavation, and construction
- Exhaust from water trucks used for onsite paved and unpaved road fugitive dust control
- Exhaust from diesel powered welding machines, electric generator, air compressors, and water pumps
- Exhaust from pickup trucks and diesel trucks used to transport workers and materials around the construction site
- Exhaust from diesel trucks used to deliver concrete, fuel, and construction supplies to the site
- Exhaust from locomotives used to deliver mechanical equipment

- Exhaust from automobiles used by workers to commute to the construction site

The maximum 24-hour impacts were assessed using the emission rates for the month of maximum activity and annual impacts were assessed using the average emissions for the entire construction period. The results of this modeling effort (shown in AIR QUALITY Table 14 below) were added to the assumed maximum background values, and compared to the most restrictive AAQS.

AIR QUALITY Table 14 Maximum Construction Impacts (µg/m^3)

Pollutant	Averaging Time	Modeled Impact	Background	Total Impact	Limiting Standard	Percent of Standard
NO_2	1 hour	72.6	282	354.6	470	75
	Annual	1.3	46.6	47.9	100	48
CO	1 hour	44	9,200	9,244	23,000	40
	8 hour	24	4,978	5,002	10,000	50
PM10	24 hour	34.4	159	193.4	50	**387**
	Annual	7.2	63.1	70.3	20	**352**
PM2.5[a]	24 hour	20.3	104	124.3	65	**191**
	Annual	4.24	31.1	35.3	12	**294**
SO_2	1 hour	9.9	52.4	62.3	655	10
	24 hour	2.5	52.5	55.0	105	52
	Annual	0.2	8.0	8.2	80	10

a Includes only combustion emissions from the construction equipment.
Source: VSE 2005a (Appendix 8.1E, Table 8.1E-4) and Energy Commission Staff calculations

As AIR QUALITY Table 14 shows, the project's construction emissions will not cause a new violation of the NO_2, CO and SO_2 ambient air quality standards, and thus those impacts are not considered significant. Staff believes that the particulate emissions from the construction of the project present a potentially significant impact because they will contribute to existing violations of the annual and 24-hour average PM10/PM2.5 AAQS, and that those emissions can and should be mitigated to a level of insignificance.

Construction Mitigation

Applicant's Proposed Mitigation

The applicant proposes a number of mitigation and emissions control measures for use during the construction of the project. The applicant specifically proposes the following measures to control exhaust emissions from heavy diesel construction equipment (VSE 2005a, Appendix 8.1E.2):

- Operational measures, such as limiting time spent with the engine idling by shutting down equipment when not in use;
- Regular preventive maintenance to prevent emission increases due to engine problems;
- Use of low sulfur and low aromatic fuel meeting California standards for motor vehicle diesel fuel; and

- Use of low-emitting gas and diesel engines meeting state and federal emissions standards (Tier I and II) for construction equipment, including, but not limited to catalytic converter systems and particulate filter systems.

The applicant further proposes the following measures to control fugitive dust emissions during construction of the project:

- Use either water application or chemical dust suppressant application to control dust emissions from on-site unpaved road travel and unpaved parking areas;
- Use vacuum sweeping and/or water flushing of paved road surface to remove buildup of loose material to control dust emissions from travel on the paved access road (including adjacent public streets impacted by construction activities) and paved parking areas;
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard;
- Limit traffic speeds on unpaved site areas to 5 mph;
- Install sandbags or other erosion control measures to prevent silt runoff to roadways;
- Replant vegetation in disturbed areas as quickly as possible;
- Use wheel washers or wash tires of all trucks exiting the construction site; and
- Mitigate fugitive dust emissions from wind erosion of areas disturbed from construction activities (including storage piles) by application of either water or chemical dust suppressant.

Staff Proposed Mitigation

Staff agrees with the applicant's proposed mitigation measures. However, because of the predicted significant contribution to both the short- and long-term PM10 problems, staff believes some additional construction mitigation measures are necessary. These additional measures are detailed below. Emissions of PM2.5 during construction are also of concern, but are mitigated by the same measures as PM10.

The VSE modeling assessment for the SVEP discussed earlier indicates the project construction has the potential to contribute significantly to violations of the state 24-hour and annual PM10 AAQS. Staff has determined that the use of oxidizing soot filters is a viable emissions control technology for all heavy diesel powered construction equipment that does not use an CARB certified low emission diesel engine and ultra-low sulfur content diesel fuel. In addition, staff proposes that prior to the commencement of construction, the applicant provide an Air Quality Construction Mitigation Plan (AQCMP) that specifically identifies the mitigation measures that the applicant will employ to limit air quality impacts during construction. Staff includes proposed staff conditions of certification **AQ-SC1** through **AQ-SC5** below to implement these requirements. These conditions are consistent with both the applicant's proposed mitigation above, and conditions of certification adopted in previous licensing cases similar to the SVEP. With the compliance of these conditions, it is staff's opinion that the potential of an unmitigated significant air quality impact from the construction of the project is expected to be very low.

Operation Impacts and Mitigation

While the construction and commissioning impacts are both relatively short lived, the operation impacts from the project will continue throughout the life of the facility. The operation impacts are thus subject to a more refined level of analysis. The following sections discuss the air quality impacts of project operation during normal full load conditions, including startup and shutdown events, the commissioning phase operations, and fumigation meteorological conditions.

Operation and Startup Impact Analysis

The applicant provided a refined modeling analysis (VSE 2005a, Section 8.1.2.3 and Appendix 8.1B), using the ISCST3 model to quantify the potential impacts of the project during both full load operation and startup conditions. The worst case (maximum) results of this modeling analysis are shown in AIR QUALITY Table 15.

AIR QUALITY Table 15
Refined Modeling Maximum Impacts (µg/m^3)

Pollutant	Averaging Time	Modeled Impact	Background	Total Impact	Limiting Standard	Percent of Standard
NO_2	1 hour [a]	75.8	282	357.8	470	76
	1 hour [b]	261.39	282	543.4	470	**116**
	Annual	0.90	46.6	47.5	100	48
CO	1 hour [a]	169.89	9,200	9,370	23,000	41
	1 hour [b]	65.06	9,200	9,265	23,000	40
	8 hour	64.61	4,978	5,043	10,000	50
PM10	24 hour	11.01	159	170	50	**340**
	Annual	0.84	63.1	63.9	20	**320**
PM2.5	24 hour	11.01	104	115	65	**177**
	Annual	0.84	31.1	31.9	12	**266**
SO_2	1 hour	3.99	52.4	56.4	655	9
	24 hour	1.26	52.5	53.8	105	51
	Annual	0.08	8.0	8.08	80	10

[a] modeled 1-hour average impacts during startup event
[b] modeled 1-hour average impacts during required periodic fire pump testing, concurrent with all turbines operating at full load
[c] maximum 98th percentile ambient PM2.5 measurement in Los Angeles County over the years 2002-2004

Source: VSE 2005a (Table 8.1-38) and Energy Commission Staff calculations

Startup impacts are much larger than full load impacts not only because the emissions are greater, but also because the flue gas stream is at a lower velocity and temperature. This reduced emissions velocity means the pollutants will settle faster and thus have less time to dilute before reaching the ground. Note that the values presented are very conservative, based on worst case startup emission estimates from the turbine manufacturer. Typical startup events are likely to generate significantly less emissions and impacts. This analysis is additionally conservative in regards to the assumed background measurements. The assumption is that the highest background measurements, from the last four years, coincide (in both location and timing) with the maximum project emission impacts. Because such a high background level is unlikely to

occur at the same time and location as the maximum impacts from the project, these modeled conditions are considered worst case, conservative, and not likely to occur.

AIR QUALITY Table 15 shows that during worst case startup and full load operations, the facility will potentially contribute to the existing PM10 and PM2.5 violations exceeding 200 percent of the ambient air quality standard. The air dispersion modeling predicted the locations of the 50 highest PM10/PM2.5 ambient air quality impacts between 1.6 and 2.0 kilometers (or 1.0 and 1.3 miles) to the north-northeast of the project site. Staff uses the federal and state ambient air quality standards, which are health based standards, as the indication of a possible ambient air quality impacts. Since the project PM10/PM2.5 emission impacts will contribute to an existing exceedance of the PM10 and PM2.5 state and federal ambient air quality standards, staff presumes that these impacts may thus also contribute to existing human health impacts (generally in the form of respiratory impacts). Thus, staff considers the project PM10/PM2.5 emission impacts to be significant if left unmitigated, in the vicinity of the proposed project, and more local than regional in nature.

AIR QUALITY Table 15 shows that the emissions of NOx from SVEP during the test firing of the firewater pump could potentially cause or contribute to a new violation of the California 1 hour NO_2 ambient air quality standard. The applicant has previously considered emission controls for the firewater pump diesel engine. Such controls (diesel particulate traps or soot filters) are primarily designed for the reduction of PM10 emissions from diesel engines. However, they also have an effect on the emissions of NOx (20 percent to 60 percent reduction). Staff recommends that the applicant re-evaluate the potential controls application to the proposed firewater pump diesel engine in conjunction with a bypass stack.

Since the project's impacts alone do not cause a violation of any NO_2 (with the exception of the California 1-hour NO_2 ambient air quality standard during the test firing of the firewater pump) CO, or SO_2 ambient air quality standards under such conservative assumptions, staff considers the project impacts for those pollutants to be insignificant. Although the direct NO_2 impacts from the SVEP do not cause a violation of the NO_2 ambient air quality standard, all NO_2 emissions from the facility will need to be regionally mitigated with RECLAIM Trading Credits (RTCs) to maintain district wide progress toward attainment with the ozone ambient air quality standards because NO_2 is a precursor emission to ozone formation (see Conditions of Certification **AQ-2** and **AQ-16**). Similarly, the direct SO_2 impacts from the SVEP, which do not cause a violation of the SO_2 ambient air quality standards, will also need to be regionally mitigated with ERCs or PRCs to maintain district wide progress toward attainment with the PM10 ambient air quality standards because SO_2 is a precursor pollutant to secondary PM10/PM2.5 formation. Please see the "Operations Mitigation" section below for a detailed discussion of the proposed mitigation.

Fumigation Modeling Impact Analysis

Surface air is usually stable during the early morning hours before sunrise. During such meteorological conditions, emissions from elevated stacks rise through this stable layer and are dispersed and diluted. When the sun first rises, the air at ground level is heated, resulting in turbulent vertical mixing (both rising and sinking) of air within a few hundred

feet of the ground. Emissions from a stack that enter this turbulent layer of air will also be vertically mixed, bringing some of those emissions down to ground level before significant dispersion occurs and possibly causing abnormally high short term impacts. As the sun continues to heat the ground, this vertical mixing layer becomes thicker over time, and the emissions plume becomes better dispersed. The early morning air pollution event, called fumigation, usually lasts approximately 30 to 60 minutes.

The applicant used the U.S. EPA approved SCREEN3 model (version 96043) for the calculation of fumigation impacts, without a shoreline assumption, since the proposed facility is approximately 35 km from the nearest shoreline. AIR QUALITY Table 16 shows the highest modeled fumigation impacts in comparison with the one-hour NO_2, SO_2 and CO standards. Since fumigation impacts will not typically occur for more than a one-hour period, only the impacts on the one-hour standards are shown. The results of the modeling analysis show that fumigation impacts will not violate any of the one-hour standards. Therefore, staff finds the potential ambient air quality impacts from fumigation to be less than significant.

AIR QUALITY Table 16
CTG Fumigation Modeling Maximum 1 hour Impacts (µg/m^3)

Pollutant	Modeled Impact	Background	Total Impact	Limiting Standard	Percent of Standard
NO_2	23.35	282	305.35	470	65
CO	8.21	9,200	9208	23,000	40
SO_2	0.31	52.4	52.71	655	8

Source: VSE 2005a (Table 8.1-35)

Commissioning Modeling Impact Analysis

The initial commissioning of a power plant refers to the time frame between completion of construction and the consistent production of electricity for sale on the market. Normal operating emission limits usually do not apply during initial commissioning procedures. The SVEP will go through several tests during initial commissioning. During the first set of tests, post-combustion controls will not be operational (i.e., the SCR and oxidation catalyst).

These tests start with a Full-Speed, No-Load test. This test runs the turbine at approximately 20 percent of its maximum heat input rate. Components tested include the ignition system, synchronization with the electric generator and the turbine-overspeed safety system. Part Load testing runs the turbines to approximately 60 percent of the maximum heat input rating. During this test the turbine will be tuned. Full Load testing runs the turbines to their maximum heat input rate. This testing entails further tuning of the turbine. Full Load with partial SCR testing runs the turbines at 100 percent of their maximum heat input rate and operates the SCR ammonia injection grid for the first time at less than maximum injection rate. Finally, Full Load with full SCR testing runs the turbines at their maximum heat input rate and operates the SCR ammonia inject grid at its full capacity. It is during this test that the SCR system will be completely tuned and operating at design levels (i.e., NOx control at 2.0 ppm).

There is little experience to draw from regarding the initial commissioning of the GE LMS100 turbines. The applicant is estimating that it will need approximately 394 hours of actual turbine operation per turbine train for commissioning purposes. The applicant plans on commissioning all five turbine trains at approximately the same time. The applicant estimates that the maximum NOx emission rate (175 lbs/hr for one turbine) is most likely to occur during the water injection commissioning phase when the water injection will be 50 percent effective and the turbine train will be at 50 percent load. The maximum CO emission rate (255 lbs/hr) will most likely occur when the water injection is 100 percent effective and the turbine train is at 100 percent load (SCR and oxidation catalyst are not yet commissioned).

The applicant used the U.S. EPA approved SCREEN3 model (version 96043) for the calculation of commissioning impacts. AIR QUALITY Table 17 shows the highest modeled impacts in comparison with the one-hour NO_2 and CO standards. The modeling reflects the NOx and CO emission rates presented and shows that there is no reasonable expectation that the emissions from initial commissioning will cause or contribute to an exceedance of the limiting ambient air quality standards.

AIR QUALITY Table 17
CTG Commissioning Modeling
Maximum 1 hour Impacts (µg/m^3)

Pollutant	Modeled Impact	Background	Total Impact	Limiting Standard	Percent of Standard
NO_2	170.49	282	452.49	470	96
CO 1-HOUR	962.44	9,200	10,162	23,000	44
CO 8-HOUR	698.49	4,978	5,767	10,000	57

Source: VSE 2005a

Secondary Pollutant Impacts

The project's gaseous emissions of NOx, SO_2, VOC and ammonia can contribute to the formation of secondary pollutants: ozone and PM10/PM2.5. There are air dispersion models that can be used to quantify ozone impacts, but they are used for regional planning efforts where hundreds or even thousands of sources are input into the model to determine ozone impacts. There are no regulatory agency models approved for assessing single source ozone impacts. However, because of the known relationship of NOx and VOC emissions to ozone formation, it can be said that the emissions of NOx and VOC from the SVEP do have the potential (if left unmitigated) to contribute to higher ozone levels in the region. These impacts would be significant because they would contribute to ongoing violations of the state and federal ozone ambient air quality standards.

Secondary PM10 formation, which is assumed to be 100 percent PM2.5, is the process of conversion from gaseous reactants to particulate products. The process of gas-to-particulate conversion, which occurs downwind from the point of emission, is complex and depends on many factors, including local humidity and the presence of air pollutants. The basic process assumes that the SOx and NOx emissions are converted into sulfuric acid and nitric acid first, and then react with ambient ammonia to form sulfate and nitrate. The sulfuric acid reacts with ammonia much faster than nitric acid

and converts completely to particulate form. Nitric acid reacts with ammonia to form both a particulate and a gas phase of ammonium nitrate. The particulate phase will tend to fall out, however the gas phase can revert back to ammonia and nitric acid. Thus, under the right conditions, ammonium nitrate and nitric acid establish a balance of concentrations in the ambient air. There are two conditions that are of interest described as “ammonia rich” and “ammonia poor.” In the case of “ammonia rich,” there is more than enough ammonia to react with all the sulfuric acid and to establish a balance of nitric acid-ammonium nitrate. Further ammonia emissions in this case will not necessarily lead to increases in ambient PM2.5 concentrations. In the case of an “ammonia poor” environment, there is insufficient ammonia to establish a balance and thus additional ammonia will tend to increase PM2.5 concentrations.

The area near Rubidoux in Riverside County (located approximately 30 miles north west of the site) has been the subject of an extensive study of ambient ammonia, which found that the area was ammonia rich. Therefore, further ammonia emissions from the SVEP project might not lead to further formation of ammonium nitrate or sulfate. While there will certainly be some conversion from the ammonia emitted from the SVEP project, there is currently no regulatory model that can predict the conversion rate. However, because of the known relationship of NOx and SOx emissions to PM2.5 formation, it can be said that the emissions of NOx and SOx from the SVEP project do have the potential (if left unmitigated) to contribute to higher PM2.5 levels in the region.

Visibility Impacts

A visibility analysis of a project’s gaseous emissions is required under the Federal Prevention of Significant Deterioration (PSD) permitting program. The analysis provided by the applicant showed that at the nearest Class 1 PSD areas, which are national parks and national wildlife refuges, are beyond the distances (greater than 32 kilometers) prescribed in the SCAQMD Rule 1303 (Table C-1). Since there are no Class 1 areas in the vicinity of the proposed project, no further analysis was provided. Staff concurs that based on the distances of the Class 1 areas from the proposed project, there is very little chance for the project to cause a visibility impact on them.

Operations Mitigation

Applicant’s Proposed Mitigation

The SVEP’s air pollutant emissions impacts will be reduced by using emission control equipment on the project and by providing emission offsets. To reduce NOx emissions, the applicant proposes to use water injection into the combustors in the CTGs and an SCR system with an ammonia injection grid.

Cooling Tower

To reduce the PM10 emissions from the cooling tower, the applicant has committed to using a wet, mechanical draft cooling tower with a drift eliminator rated at 0.0005 percent. The SCAQMD rules and regulations do not cover cooling towers in their permits to construct or operate. Thus staff proposes that the cooling tower compliance be monitored through Conditions of Certification **AQ-SC11** and **AQ-SC12**.

Combustion Turbine

To reduce CO emissions, the applicant proposes to use a combination of good combustion and maintenance practices, along with an oxidizing catalyst. The use of a clean-burning fuel (natural gas) and the efficient combustion process of the CTGs will limit VOC and PM10 emissions. The use of natural gas as the only fuel will limit SO_2 emissions.

Water Injection

Over the last 20 years, combustion turbine manufacturers have focused their attention on limiting the NOx formed during combustion. One method has been steam or water injected into the combustor cans to reduce combustion temperatures and the formation of thermal NOx, which is the primary source of NOx emissions from a CTG. This method has been employed for many years and is well understood and has been proposed for the GE LMS100 turbines for this project.

Flue Gas Controls

To further reduce the emissions from the combustion turbines before they are exhausted into the atmosphere, flue gas controls, primarily catalyst systems, will be installed for the GE LMS100s. The applicant is proposing two catalyst systems, an SCR system to reduce NOx, and an oxidizing system to reduce CO and VOC.

Selective Catalytic Reduction (SCR)

SCR refers to a process that chemically reduces NOx by injecting ammonia into the flue gas stream over a catalyst in the presence of oxygen.

The process is termed selective because the ammonia reducing agent preferentially reacts with NOx rather than oxygen, producing inert nitrogen and water vapor. The performance and effectiveness of SCR systems are related to operating temperatures, which may vary with catalyst designs. Flue gas temperatures from a combustion turbine typically range from 950 to 1100 F.

Catalysts generally operate between 600 to 750 F (CARB 1992), and are normally placed inside the exhaust where the flue gas temperature has cooled. At temperatures lower than 600 F, the ammonia reaction rate may start to decline, resulting in increasing ammonia emissions, called “ammonia slip.” At temperatures above about 800^{o}F, depending on the type of material used in the catalyst, damage to some catalysts can occur. The catalyst material most commonly used is titanium dioxide, but materials such as vanadium pentoxide, zeolite, or a noble metal are also used. These newer catalysts (versus the older alumina-based catalysts) are resistant to fuel sulfur fouling at temperatures below 770 F (EPRI 1990).

Regardless of the type of catalyst used, efficient conversion of NOx to nitrogen and water vapor requires uniform mixing of ammonia into the exhaust gas stream. Also, the catalyst surface has to be large enough to ensure sufficient time for the reaction to take place.

Oxidizing Catalyst

To reduce the turbine CO and VOC emissions, the applicant proposes to install an oxidizing catalyst, which is similar in concept to catalytic converters used in automobiles. The catalyst is usually coated with a noble metal, such as platinum, which will oxidize unburned hydrocarbons and CO to water vapor and carbon dioxide (CO_2). The catalyst is proposed to limit the CO concentrations exiting the exhaust stack to six ppm, corrected to 15 percent excess oxygen and averaged over three-hours.

Emission Offsets

With the exception of VOC, the applicant has not secured sufficient offsets to satisfy either SCAQMD Rule 1303 (which requires Emission Reduction Credits (ERCs)) or Regulation XX (which requires participation in the RECLAIM program) or to mitigate the project impacts under CEQA. At this time, staff is aware of 226 lbs/day of VOC ERCs that the applicant has secured. However, the applicant is proposing to provide the exact same ERCs for both the Walnut Creek Energy Park (WCEP) project and SVEP. The WCEP project is further along in the licensing process than SVEP, thus the 226 lbs/day would fully offset WCEP. Staff provides AIR QUALITY Table 18 to summarize the current intentions of the applicant to offset or otherwise mitigate the SVEP emission impacts.

The Regional Clean Air Incentives Market (RECLAIM) is designed to allow facilities flexibility in achieving emission reduction requirements for NOx and SOx through controls, equipment modifications, reformulated products, operational changes, shutdowns, other reasonable mitigation measures or the purchase of excess emission reductions. The RECLAIM program establishes an initial allocation (beginning in 1994) and an ending allocation (to be attained by the year 2003) for each facility within the program (Rule 2002). Each facility then reduces their allocation annually on a straight line from the initial to the ending allocation. The RECLAIM program supersedes other specified district rules, where there are conflicts. As a result, the RECLAIM program has its own rules for permitting, reporting, monitoring (including continuous emission monitoring (CEM)), record keeping, variances, breakdowns and the New Source Review program, which incorporates BACT requirements (Rules 2004, 2005, 2006 and 2012). RECLAIM also has its own banking rule, RECLAIM Trading Credits (RTCs), which is established in Rule 2007. SVEP is exempt and excluded from the SOx RECLAIM program (Rule 2011) because it uses natural gas exclusively (per Rule 2001). However, it will be a NOx RECLAIM project and therefore subject to the rules of RECLAIM for NOx emissions.

AIR QUALITY Table 18
Offsets and Mitigation Proposed by the Applicant

Pollutant	Amount of Offsets Required	Offset or other mitigation
NOx	195,419 lbs/year for the first year of operation	The applicant intends to participate in the SCAQMD NOx RECLAIM program, but has not secured any Reclaim Trading Credits (RTCs).
SOx	45 lbs/day	The applicant intends to purchase SO_2 ERCs, but has not demonstrated to staff that they have secured any such ERCs at this time. Alternatively, the applicant may purchase credits in the Priority Reserve under SCAQMD Rule 1309.1, but has not completed the required due diligence to participate in the Priority Reserve program (SCAQMD 2007a).
VOC	225 lbs/day	The applicant intends to purchase VOC ERCs, and has demonstrated to staff that they have secured 226 lbs/day of VOC ERCs at this time**.** However, the applicant has two projects before the Energy Commission and their VOC ERC holding is sufficient for only one of the projects.
CO	1,240 lbs/day	U.S. EPA is reviewing whether the district should be designated as attainment for CO. The schedule for reaching this decision is late April 2007. The applicant intends to purchase CO ERCs if the SCAQMD is not re-designated by the U.S. EPA to attainment for CO, but has not secured any such ERCs at this time. Alternatively, the applicant may participate in the Priority Reserve, but has not completed the required due diligence to participate.
PM10	465 lbs/day	The applicant intends to participate in the Priority Reserve under SCAQMD Rule 1309.1, but has not completed the required due diligence to purchase any available PM10 ERCs (SCAQMD 2007a).
PM2.5	465 lbs/day	The applicant intends to rely on the PM10 credits they intend to purchase from the SCAQMD to serve as PM2.5 mitigation.

Adequacy of Proposed Mitigation

Potential Mitigation for VOC

Even though the applicant currently holds 226 lbs/day of VOC ERCs, it is likely that that holding will be used on the applicant's other proposed project, Walnut Creek Energy Park (WCEP).The WCEP Final Staff Assessment was published on April 11, 2007, and the Energy Commission Evidentiary Hearings will be scheduled soon. Given these facts, and statements made by the applicant at the recent WCEP Preliminary Staff Assessment workshop held on January 19, 2007, staff reasonably assumes that the applicant's current VOC ERC holding will be used for WCEP and not SVEP. Thus staff

believes that the applicant has not demonstrated that they have secured sufficient VOC ERCs for the SVEP.

Potential Mitigation for NOx

For NOx, staff understands that the RTCs will be obtained after the Energy Commission permitting process is finalized (after the Commission Decision is issued). Consistent with previous Commission Decisions (Inland Empire Energy Center, 01-AFC-17), staff recommends that the first year of the RTCs be obtained prior to the commencement of construction (see Condition of Certification **AQ-SC7**). If that occurs, staff believes that the NOx emission impacts as a contributor to secondary pollutant formation (ozone and PM10/PM2.5) will be adequately mitigated through compliance with Condition of Certification **AQ-SC7**.

Potential Mitigation for SOx, CO, PM10 and PM2.5

Priority Reserve Bank; Rule 1309.1 and Rule 1315

The applicant has proposed to offset the project's SOx and PM10 emission impacts with the credits from the SCAQMD Priority Reserve Bank. The applicant is allowed access to this bank by the recently adopted amendments to Rule 1309.1. There are several requirements that the applicant must fulfill to comply with Rule 1309.1 and thus have access to the Priority Reserve. According to the SCAQMD Preliminary Determination of Compliance (SCAQMD 2007a), for the applicant to access the Priority Reserve, Rule 1309.1 imposes the following pertinent requirements:

- The applicant must pay a mitigation fee commensurate with the amount of credits purchased (the applicant would pay this fee prior to the SCAQMD issuance of a Permit to Construct).
- The project must be operational within three years of the permit to construct (the project is planned to be operational by summer or fall 2009).
- The applicant must enter into a long-term contract with the State of California for at least 50 percent of their power if the District's Executive Officer determines, based on consultation with state power agencies, that the state is entering into such contracts and that a need for such contracts exists at the time of permitting. (The state is currently not offering such contracts.)
- The applicant must purchase PRCs at a 1.2 to 1.0 offset ratio, which the applicant plans to do.
- The applicant is required to conduct a due diligence effort approved by the Executive Officer to secure ERCs for the requested Priority Reserve pollutants (potentially SOx, CO and PM10; the applicant is demonstrating compliance with this requirement on an on-going basis).

The SCAQMD is proposing further amendments to Rule 1309.1, although the adoption date is uncertain. As the rule and the various options are currently written, the amended rule would not prohibit access to the Priority Reserve for this project, although it may increase the fees the applicant would pay. The remainder of this section describes staff's current understanding of the workings of the Priority Reserve.

Rule 1315 is the federal new source review tracking system for the District's offset account, which is the same source of emission reduction credits as the Priority Reserve. Rule 1315 is fairly unique in the SCAQMD rules and regulations in that it has requirements that apply only to the SCAQMD and no other parties.

The SCAQMD Offset Account is currently debited by two sources; the Priority Reserve (Rule 1309.1), and the Exemptions (Rule 1304). A third source of debit, contained in Rule 1309.2 – Offset Budget, will be in effect only when the U.S.EPA approves this rule into the State Implementation Plan. The Offset Account can be credited by six different sources; orphaned shutdowns, orphaned reductions, ERCs provided for minor sources (otherwise exempted under rule 1304), the 0.2 offset ratio for all major sources (except for extreme non-attainment air contaminants), the amount of SCAQMD offset account credits surrendered for a facility applying for an emission reduction credit, and any portion of a new banked ERCs, if the source has a remaining positive NSR balance, which is considered an offset debt.

There are several complicating factors regarding the implementation of Rule 1315, including the issuance of the Preliminary and Final Determinations of Equivalency (PDE and FDE). The PDE/FDE allows the SCAQMD to demonstrate to their Governing Board and the USEPA, that the debits and credits in the Offset Account are sufficient to balance the federal New Source Review requirements.

Rule 1315 directly affects staff's assessment because while the SCAQMD will charge the applicant at an offset ratio of 1.2:1 for all pollutants purchased through the Priority Reserve, the SCAQMD will debit the Offset Account at a 1:1 ratio, consistent with the requirements of the federal Clean Air Act. So, while the applicant will pay for an offset ratio of 1.2:1, the project emissions will be offset at a ratio of 1:1, as allowed under Rule 1315, and pursuant to the federal Clean Air Act. Therefore, for PM10, SOx and possibly CO, the project will be offset in fact at a ratio of 1:1. According to SCAQMD Governing Board Resolution, however, SCAQMD is directed to invest the fees collected for the purchase of Priority Reserve credits in emission reduction projects in the surrounding area impacted by the project, with one third of the mitigation fees to be invested in renewable sources, such as solar energy.

PM10/PM2.5: Priority Reserve Credits

The SCAQMD issued a report which details the credits within their Offset Account as part of the revised NSR offset tracking system (Rule 1315) assessment. That report shows the running balance of the Offset Account from 1990 through 2002. Taking a first-in first-out approach, the SCAQMD is able to show the balance of debits and credits in the Offset Account. The primary source of credits for the Offset Account comes from "Orphan Shutdowns" (see discussion above). The balance at the end of 2002 in the Offset Account for PM10 was 6.92 tons/day (approximately 13,840 lbs/day).

In order to demonstrate that these credits represented real emission reductions, SCAQMD supplied staff with a list of the orphaned shutdowns for the year 2003-2004 (see Attachment 1). The information included credits (PM10 lbs/day) by zip-code and by equipment description. From these equipment descriptions, staff was able to estimate the amount of PM2.5 within the Priority Reserve Credits for 2003-04. The results of the analysis show that 87.4 percent of the PM10 credits are also PM2.5 credits (Attachment

2). If this ratio is applied to the entire Offset Account, as of 2002, it would contain approximately 12,096.2 lbs/day of PM2.5 credits.

From the zip-code information and satellite maps, Energy Commission staff was able to determine that the largest emission reductions generally come from industrialized areas in the SCAQMD jurisdiction, such as Rancho Cucamonga, Huntington Park, Burbank, Santa Ana, Baldwin Park, Moreno Valley, Inglewood, and downtown Los Angeles. The most significant types of sources that are the source of the Priority Reserve credits are abrasive blasting operations, combustion turbines, aggregate operations, asphalt blending and batching equipment, paint production and spray booth operations. The SCAQMD tracks orphaned shutdowns based on the permitted sources within their jurisdiction. If a source fails to renew their permit, the SCAQMD counts them as potential orphaned shutdowns. The SCAQMD will wait for at least a year to be sure that the source is not going to renew the permit and check to be sure that the source is not operating illegally. Energy Commission staff is very familiar with the equipment descriptions that the SCAQMD uses, through our involvement with the cumulative assessment (see below). Based on this information, staff is confident that the Priority Reserve Credits represent emission reductions of both PM10 and PM2.5 credits sufficient to mitigate the project emission impacts.

If the applicant were to purchase all the PM10 credit liability from the Priority Reserve, the SCAQMD would retire 463 lbs/day of PM10 PRCs. By staff's estimate (see above) this would represent 405 lbs/day of PM2.5 PRCs. Because power plants typically operate below their permit levels to avoid violations and fines, staff does not expect the project to operate at the proposed emission limit of 463 lbs/day. Staff's experience with other turbine generators is that during operation they will emit from 50 percent to 70 percent of their PM10 emission limits, approximately 324 lbs/day. Although there is limited operational knowledge for the GE LMS100, staff is confident that the project will operate similarly to the GE turbine guarantees provided by the applicant. Therefore, staff is confident that the PM10 and PM2.5 emission impacts would be mitigated by the purchase of PRCs from the SCAQMD.

SOx: Priority Reserve Credits

The Priority Reserve contains, as of 2002, 10.56 tons/day of SOx credits (or approximately 21,200 lbs/day). The applicant will need to purchase 45 lbs/day SOx PRCs. Therefore, staff is confident that the Priority Reserve contains sufficient credits to mitigate the WCEP SOx emission impacts.

Potential Mitigation for CO

As discussed in the Operation and Impacts section, staff believes that the project's potential impacts on the CO ambient air quality standards are not significant. Thus, staff does not recommend any further CO mitigation measures. However, the SCAQMD does require offsets under their NSR rule, at least until the U.S. EPA re-designates the South Coast Air Basin as attainment. Staff feels it is likely that, in the course of this licensing case, the U.S. EPA will re-designate the SCAQMD as attainment for the federal CO ambient air quality standards, and thus CO offsets would not be necessary. Because there is no significant impact from the project CO emissions and because the CO attainment status is not completely settled at this writing, staff recommends that the

potential need for CO offsets not be included in Condition of Certification **AQ-SC7** to avoid an unnecessary amendment to the Condition.

Quantification of Mitigation

Notwithstanding the lack of ERCs, RTCs, or credits from the Priority Reserve program (PRCs), there is another issue as to the quantification of the mitigation and offsets that the SCAQMD will require. For the pollutants SO_2, CO, VOC and PM10, the SCAQMD calculates the ERC liability based on a 30-day average calculated from the highest potential month of emissions. This method results in an average daily emission to be offset, and not the potential maximum daily emissions. For facilities that operate as base-loaded power plants, there is little difference between the SCAQMD 30-day average daily limit and the actual potential maximum daily emissions. However, when a facility is operated as a peaking unit, the SCAQMD 30-day average daily limit includes a significant portion of the month that the power plant does not operate. The differences in the ERCs, which are the mitigation for the project, and the maximum potential emissions, are shown in the following AIR QUALITY Table 19.

AIR QUALITY Table 19
Maximum Potential Daily Emissions vs. Required ERCs
(Pounds per day [lb/day])

Pollutant	SO_2	CO	VOC	PM10
Maximum Daily Emissions[a]	72.7	1,684.2	229.2	730.7
SCAQMD Required Offsets	46.0	1240[b]	226	465
Difference	**26.7**	**444.2**	**3.2**	**265.7**

[a] From AIR QUALITY Table 11
[b] CO offsets might not be required at the time of licensing due to the SCAQMD CO re-designation.

However, because the project does not operate everyday of the month there are a significant number of days that the mitigation is offsetting zero emissions from the project. In calculating the offset liability for the project, the SCAQMD assumes that the project “worst case month” operates for 463 hours (including startups and shutdowns). That is slightly more than 19 days out of 30, meaning that 11 days will see no operation from the project. The difference between the maximum expected daily emissions and the 30-day average daily mitigation (shown in AIR QUALITY Table 19) over the 19 days of operation, represents approximately a maximum of seven days of operation (265.7 lbs/day times 19 days divided by 730.3 lbs/day equals 6.9 days or approximately 7 days). Subtracting seven from eleven days, leaves four days for which the project is still offset and not operating. Therefore, if the applicant performs all tasks necessary to offset the project through the SCAQMD NSR program, staff concludes that even though the offsets do not fully cover the maximum potential daily emissions from the project, they will fully mitigate the project emission impacts over the course of the month.

Staff Proposed Mitigation

Staff recommends no further mitigation at this time, however that recommendation is predicated on the assumption that the applicant will provide adequate mitigation through the SCAQMD NSR regulations as they have stated is their intent.

CUMULATIVE IMPACTS AND MITIGATION

"Cumulative impacts" are defined as "two or more individual effects which, when considered together, are considerable or... compound or increase other environmental impacts." (CEQA Guidelines, § 15355.) A cumulative impact consists of an impact that is created as a result of a combination of the project evaluated in the EIR together with other projects causing related impacts." (CEQA Guidelines, § 15130(a)(1).) Such impacts may be relatively minor and incremental, yet still be significant because of the existing environmental background, particularly when one considers other closely related past, present, and reasonably foreseeable future projects.

This analysis is primarily concerned with "criteria" air pollutants. Such pollutants have impacts that are usually (though not always) cumulative by nature. Rarely will a project cause a violation of a federal or state criteria pollutant standard. However, a new source of pollution may contribute to violations of criteria pollutant standards because of the existing background sources or foreseeable future projects. Air districts attempt to attain the criteria pollutant standards by adopting attainment plans, which comprise a multi-faceted programmatic approach to such attainment. Depending on the air district, these plans typically include requirements for air "offsets" and the use of "Best Available Control Technology" for new sources of emissions, and restrictions of emissions from existing sources of air pollution.

Much of the preceding discussion is concerned with cumulative impacts. The "Existing Ambient Air Quality" section describes the air quality background in the South Coast Air Basin, including a discussion of historic ambient levels for each of the significant criteria pollutants. The "Construction Impacts and Mitigation" section discusses the project's contribution to the local existing background caused by project construction. This following section includes four additional analyses:

- A summary of projections for criteria pollutants by the air district and the air district's programmatic efforts to abate such pollution;
- An analysis of the project's "localized cumulative impacts"-- direct emissions locally when combined with other local major emission sources; and
- A discussion of chemically reactive pollution impacts; ozone and PM2.5.
- A discussion of greenhouse gas reporting.

Summary of Projections

The South Coast Air Quality Management SCAQMD is the agency with principal responsibility for analyzing and addressing cumulative air quality impacts, including the impacts of ambient ozone and particulate matter. The SCAQMD has summarized the cumulative impact of ozone and particulate matter on the air basin from the broad variety of its sources. Analyses of these cumulative impacts, as well as the measures the SCAQMD proposes to reduce impacts to air quality and public health, are summarized in four publicly available documents that the SCAQMD has adopted or will soon adopt. These adopted air quality plans are summarized below.

- **Draft 2007 Air Quality Management Plan** (adopted 8/1/ 2003)
  Link: www.aqmd.gov/aqmp/07AQMP/07AQMP.html
- **Final 2003 Air Quality Management Plan** (adopted 12/10/1999)
  Link: www.aqmd.gov/aqmp/AQMD03AQMP.htm
- **Final Socioeconomic Report for the Final 2003 AQMP** (adopted 8/1/2003)
  Link: www.aqmd.gov/aqmp/docs/2003AQMPSocio.pdf
- **Final 2003 Coachella Valley PM10 State Implementation Plan** (adopted 8/1/2002)
  Link: www.aqmd.gov/aqmp/docs/f2003CVsip.pdf

Draft 2007 Air Quality Management Plan

(*The following paragraphs are excerpts from the Executive Summary of the Draft 2007 Air Quality Management Plan adopted by the SCAQMD August 1, 2003*)

The SCAQMD adopted (August 1, 2003) the Draft 2007 Air Quality Management Plan (Draft AQMP) primarily in response to changes in the federal Clean Air Act (CAA). The CAA requires an 8-hour ozone non-attainment area to prepare a State Implementation Plan (SIP) revision by June of 2007 and a PM2.5 non-attainment area to submit a SIP revision by April 2008. The SCAQMD has decided that it is most prudent to prepare a single comprehensive and integrated SIP revision that satisfies both the ozone and PM2.5 requirements. Additionally, the U.S. EPA requires that transportation conformity budgets be established based on the most recent planning assumptions and approved motor vehicle emission model. The Draft AQMP is based on assumptions provided by both the California Air Resources Board (CARB) and the Southern California Association of Governments (SCAG) reflecting their upcoming model (EMFAC) for motor vehicle emissions and demographic updates.

The Draft AQMP relies on a comprehensive and integrated control approach to achieve the PM2.5 standard by 2015 through implementation of short-term and midterm control measures and achieve the 8-hour ozone standard by 2021/2024 based on implementation of additional long-term measures. In order to demonstrate attainment by the prescribed deadlines, emission reductions needed for attainment must be in place by 2014 and 2020/2023 timeframe.

Since PM2.5 in the Basin is overwhelmingly formed secondarily, the overall draft control strategy focuses on reducing precursor emission of SOx, directly-emitted PM2.5, NOx, and VOC instead of fugitive dust. Based on the District's modeling sensitivity analysis, SOx reductions, followed by directly-emitted PM2.5 and NOx reductions, provide the greatest benefits in terms of reducing the ambient PM2.5 concentrations. While VOC reductions are less critical to overall reductions in PM2.5 air quality, they are heavily relied upon for meeting the 8-hour ozone standard. SOx is also the only pollutant that is projected to grow in the future, due to ship emissions at the ports, requiring significant controls.

Directly-emitted PM2.5 emission reductions from ongoing diesel toxic reduction programs and from the short-term and mid-term control measures are also incorporated into the Draft AQMP. NOx reductions primarily based on mobile source control strategies (e.g., add-on control devices, alternative fuels, fleet modernization, repowers,

retrofits) are also relied upon for attainment. Adequate VOC controls need to be in place in time for achieving significant VOC reductions needed for the 8-hour ozone standard by 2021/2024. Reducing VOC emissions in early years would also ensure continued progress in reducing the ambient ozone concentrations. The 8-hour ozone control strategy relies on the implementation of the PM2.5 control strategy augmented with additional long-term VOC and NOx reductions for meeting the standard by 2020/2023 timeframe. With respect to PM10, since the Basin will not attain the annual standard by 2006, additional local programs are proposed to address the attainment issue in an expeditious manner.

The Draft AQMP control measures consist of three components: 1) the District's Stationary and Mobile Source Control Measures; 2) State and Federal Control Measures recommended by CARB and/or SCAQMD staff; and 3) Regional Transportation Strategy and Control Measures provided by SCAG.

The SCAQMD control strategy for stationary and mobile sources is based on the following approaches: 1) facility modernization; 2) energy efficiency and conservation; 3) good management practices; 4) market incentives/compliance flexibility; 5) area source programs; 6) emission growth management; and 7) mobile source programs. The Draft AQMP also includes SCAQMD staff's recommended State and federal stationary and mobile source control measures since CARB has only developed an overview of a possible control strategy for PM2.5.

The measures, prepared by SCAQMD staff and recommended for CARB's consideration for inclusion into the final AQMP, include strategies such as Smog Check Program enhancements, extensive fleet modernization of on-road heavy-duty diesel vehicles and off-road diesel equipment, accelerated penetration of advanced technology vehicles, low sulfur fuel for marine engines, accelerated turn-over of high-emitting off-road engines, and gasoline and diesel fuel reformulations.

Finally, the emission benefits associated with the 2004 Regional Transportation Plan and the 2006 Regional Transportation Improvement Program are also reflected in the Draft AQMP.

In order to achieve necessary reductions for meeting air quality standards, all four agencies (i.e., SCAQMD, CARB, U.S. EPA, and SCAG) would have to aggressively develop and implement control strategies through their respective plans, regulations, and alternative approaches for pollution sources within their primary jurisdiction. Even though SCAG does not have direct authority over mobile source emissions, it will commit to the emission reductions associated with implementation of the 2004 Regional Transportation Plan and 2006 Regional Transportation Improvement Program which are imbedded in the emission projections. Similarly, the Ports of Los Angeles and Long Beach have authority they must utilize to assist in the implementation of various strategies if the region is to attain clean air by federal deadlines. The Table below shows the areas of jurisdiction for each agency.

Agency	Jurisdiction
U.S. EPA	Forty-nine state mobile vehicle emission standards. Airplanes, trains, and ships. New off-road construction & farm equipment below 175 hp.
CARB	On-road/Off-road vehicles. Motor vehicle fuels. Consumer products.
SCAQMD	Stationary (e.g., industrial/commercial) and area sources. Indirect sources. Some mobile sources (e.g., visible emissions and use regulations from trains and ships).
SCAG	AQMP conformity assessment. Regional Transportation Improvement Program. Transportation Control Measures.
Local Government/CTCs	Transportation and local government actions (i.e., land use approvals & ports). Transportation facilities.

Although the SCAQMD has completely met its obligations under the 2003 AQMP and stationary sources subject to the District's jurisdiction account for only 11% of NOx and 24% of SOx emissions in the Basin in 2014, the Draft AQMP contains several short-term and mid-term control measures aimed at achieving further NOx and SOx reductions (as well as VOC and PM2.5 reductions) from these already regulated sources.

These strategies are based on facility modernization, energy conservation measures and more stringent requirements for existing equipment (e.g., space heaters, ovens, dryers, furnaces). In addition to short-term and mid-term control measures, the SCAQMD is also committing to long-term VOC reductions of 32 tons per day by 2020 for the 8-hour ozone attainment.

Clean air for this region requires CARB to aggressively pursue reductions and strategies for on-road and off-road mobile sources and consumer products. In addition, considering the significant contribution of federal sources such as marine vessels, locomotives, and aircraft in the Basin (i.e., 72% of SOx and 34% of NOx), it is imperative that the U.S. EPA pursue and develop regulations for new and existing federal sources to ensure that these sources contribute their fair share of reductions toward attainment of the federal standards. Unfortunately, regulation of these emission sources has not kept pace with other source categories and as a result, these sources are projected to represent a significant and growing portion of emissions in the Basin. Without a collaborative and serious effort among all agencies, attainment of the federal standards would be seriously jeopardized.

Final 2003 Air Quality Management Plan

(*The following are excerpts from the 2003 Air Quality Management Plan adopted by the SCAQMD December 10, 1999*)

The SCAQMD amended the 1997 Air Quality Management Plan (AQMP) in 1999 to address the U.S. EPA's proposed disapproval of the 1997 Ozone SIP revision to ensure that the 1997 AQMP complied with or exceeded federal requirements. The 1999 AQMP amendments to the 1997 AQMP were subsequently approved by the U.S. EPA into the SIP in April 2000. The SCAQMD updated the PM10 portion of the 1997 AQMP for both the South Coast Air Basin and Coachella Valley in 2002 as part of the District's request to extend the PM10 attainment date from 2001 to 2006 for these areas as allowed under the federal Clean Air Act (CAA). The U.S. EPA approved the 2002 update on April 18, 2003.

The purpose of the 2003 Revision to the Air Quality Management Plan for the South Coast Air Basin (Basin) and those portions of the Salton Sea Air Basin under SCAQMD jurisdiction are to set forth a comprehensive program that will lead these areas into compliance with all federal and state air quality planning requirements. Specifically, the 2003 AQMP Revision is designed to satisfy the California Clean Air Act (CCAA) tri-annual update requirements and fulfill the District's commitment to update transportation emission budgets based on the latest approved motor vehicle emissions model and planning assumptions. The Plan will be submitted to U.S. EPA as a SIP revision once it is approved by the SCAQMD Governing Board and the California Air Resources Board (CARB).

The 2003 AQMP sets forth programs which require the cooperation of all levels of government: local, regional, state, and federal. Each level is represented in the Plan by the appropriate agency or jurisdiction that has the authority over specific emissions sources. Accordingly, each agency or jurisdiction is associated with specific planning and implementation responsibilities.

At the federal level, the U.S. EPA is charged with regulation of 49-state on-road motor vehicle standards; trains, airplanes, and ships; and non-road engines less than 175 horsepower. The CARB, representing the state level, also oversees on-road vehicle emission standards, fuel specifications, some off-road sources and consumer product standards. At the regional level, the SCAQMD is responsible for stationary sources and some mobile sources. In addition, the SCAQMD has lead responsibility for the development and adoption of the Plan. Lastly, at the local level, Associations of Governments have a dual role of leader and coordinator. In their leadership role, they, in cooperation with local jurisdictions and sub-regional associations, develop strategies for these jurisdictions to implement; as a coordinator, they facilitate the implementation of these strategies. For the South Coast Air Basin, the Southern California Association of Governments is the District's major partner in the preparation of the AQMP. Interagency commitment and cooperation are the keys to success of the AQMP.

Since air pollution physically transcends city and county boundaries, it is a regional problem. No one agency can design or implement the Plan alone and the strategies in the Plan reflect this fact.

Past air quality programs have been effective in improving the Basin's air quality. Ozone levels have been reduced by half over the past 30 years, nitrogen dioxide, sulfur dioxide, and lead standards have been met, and other criteria pollutant concentrations have significantly declined. The federal and state CO standards were also met as of the end of 2002. However, the Basin still experiences exceedances of health-based standards for ozone and particulate matter under 10 microns in size (PM10).

Progress in implementing the 1997/1999 SIPs can be measured by the number of control measures that have been adopted as rules and the resulting tons of pollutants targeted for reduction. Emission reduction commitments and reductions achieved in 2010 are based on the emissions inventory from the 1997 SIP. Since October 1999, sixteen control measures or rules have been adopted or amended by the SCAQMD through October 2002. The primary focus of the District's efforts had been the adoption and implementation of VOC control measures. The SCAQMD has achieved 158 tons per day VOC reductions, exceeding its 1997/1999 SIP commitment by approximately 44.5 tons per day.

To date, CARB has committed to VOC and NOx emission reductions of approximately 90 and 106 tons per day, respectively, and has achieved 67 and 140 tons per day, respectively. While exceeding its NOx target by 34 tons per day, CARB fell short of the VOC target by 21 tons per day using the 1997 SIP currency. U.S. EPA was obligated to VOC and NOx emission reductions of approximately 35 and 75 tons per day, respectively, and has achieved 38 and 63 tons per day, respectively.

Final Socioeconomic Report for the Final 2003 AQMP

(*The following are excerpts from the Final Socioeconomic Report for the Final 2003 AQMP adopted by the SCAQMD August, 2003*)

The Final Socioeconomic Report accompanies the Final 2003 AQMP and presents the potential socioeconomic impacts resulting from implementation of this Plan. The Plan contains several short- and long-term strategies designed to achieve state and federal ambient air quality standards, and air quality planning requirements. These strategies will be implemented by the SCAQMD, the California Air Resources Board (CARB), the U.S. Environmental Protection Agency (U.S. EPA), and other local and regional governments. Implementation of these control strategies will affect the region's economy.

In recent years, there have been significant improvements in air quality in the Basin. Additional control is still needed in order to bring the Basin into compliance with the federal air quality standards. The benefits of better air quality through implementation of the draft final 2003 AQMP include increases in crop yields, visibility improvements, and a reduction in morbidity, higher survival rates, reduced expenditures on refurbishing building surfaces, and reduced traffic congestion. The total benefits of the draft final Plan are expected to exceed $6.6 billion since not all of the benefits associated with the implementation of the Plan can be quantified.

The projected annual implementation cost of the draft final Plan is $3.2 billion annually, on average. The cost estimate is divided into quantifiable and unquantifiable measures.

The projected cost for 31 quantifiable short-term measures and some long-term measures is approximately $1.6 billion. Transportation control measures alone contribute to 57 percent of the total quantifiable cost. The cost of unquantifiable measures is projected to be approximately $1.6 billion. The cost of unquantified measures was derived from emission reductions in 2010 and the average cost effectiveness of quantifiable measures.

Without the AQMP, jobs in the four-county area are projected to grow at an annual rate of about 1.069 percent between 2002 and 2020. Cleaner air would result in 41,934 jobs created annually, on average. This would bring the job growth rate to an annual rate of 1.1 percent. On the other hand, the quantified measures are projected to result in 9,893 jobs forgone annually, on average, which would slow down the job growth rate to 1.054 percent relative to the baseline employment. The four-county region is projected to have 11 million jobs in 2020. The jobs created from clean air benefits would amount to 0.57 percent of the 2020 baseline jobs. The jobs forgone from quantified measures would be 0.2 percent of the 2020 baseline jobs.

All the 19 sub-regions are projected to have additional jobs created from cleaner air. All the ethnic groups are expected to have job gains as a result. The share of whites and Hispanics in job gains is projected to be 84 percent with other ethnic groups representing the balance. Implementation of quantified control measures would also result in additional jobs to be created between 2002 and 2006 of which whites are projected to have a 54 percent share and Hispanics would have a 32 percent share. In later years (2007 to 2020), these measures would result in an average of 19,761 jobs forgone annually of which the share of Hispanics is 25 percent.

Implementation of the final 2003 AQMP is projected to result in air quality improvements sufficient to attain the air quality standards by 2010 throughout the Basin. The air quality modeling results have, however, shown the greatest relative improvements and air quality benefit in the eastern portion of the Basin. The Chino-Redlands area is shown to have the greatest share of the monetary value of these improvements. A demographic analysis of the2000 census showed that 45 percent of the population there is Hispanic and 36 percent white. The minority population increased from 45 percent in the 1990 census to 64 percent in the 2000 census.

The attainment of the air quality standards in 2010 depends on a full implementation of control measures, as proposed in the final 2003 AQMP. The costs of these measures will spread throughout various communities. The cost of quantified control measures that represent 30 percent of the total emission reductions towards clean air would exert a relatively higher share on the southern portion of Los Angeles County and the Chino-Redlands area than the rest of the communities.

The socioeconomic report examines industrial competitiveness in three areas: the Basin's share of national jobs, product prices and profits, and exports and imports. The quantified measures and benefits of the draft final 2003 AQMP are not expected to result in discernible differences in the four-county region’s share of national jobs. For the majority of sectors, the impact on product prices is projected to be less than one-half of 1 percent of the baseline index of product prices and the impact on profits is projected to be less than one-half of one percent of the baseline index of profits. The

impact on imports and exports is small as well, especially when the size of the four-county region is considered.

Final 2003 Coachella Valley PM10 State Implementation Plan

(*The following are excerpts from the Final 2003 Coachella Valley PM10 State Implementation Plan adopted by the SCAQMD August 1, 2003*)

The Coachella Valley PM10 non-attainment area consists of an approximately 2,500 square mile portion of central Riverside County. Geographically, the Valley is bounded by the San Jacinto Mountains to the west, and the Little San Bernardino Mountains to the east. Elevation ranges from approximately 500 feet above sea level in the northern part of the Valley to about 150 feet below sea level near the Salton Sea.

The Coachella Valley is currently designated as a serious non-attainment area for PM10. The SCAQMD is the air agency responsible for air quality planning and regulations in the Coachella Valley. Since it was designated as a PM10 non-attainment area, Coachella Valley governments, agencies, private and public stakeholders, along with the SCAQMD, have worked to reduce levels of PM10 dust. The 1996 Coachella Valley Plan dust control efforts were so successful that Coachella Valley became the first serious non-attainment area in the nation to request re-designation. The local dust control ordinances and SCAQMD's fugitive dust rules 403 and 403.1 were SIP-approved by U.S. EPA on January 8, 1999. The SCAQMD has invoked the U.S. EPA's Natural Events Policy (NEP) to identify high PM10 days that resulted from high-wind natural events. These days are not used in determining the 24-hour or annual average PM10 levels. Based on monitoring data and the NEP, the Coachella Valley demonstrated attainment of the annual average PM10 NAAQS (expected annual average mean for past three years) for each year from 1995 through 1999. It has demonstrated attainment of the 24-hour PM10 NAAQS from 1993 through 2002.

In 1999, annual average PM10 levels jumped up to 52.7 ug/m^3, significantly above levels seen in previous years (PM10 levels all reflect removal of natural events, if any). An improving economy had resulted in greater development, particularly of large resorts and recreational areas, and the area had suffered a number of dry years. After a series of SCAQMD enforcement actions at these large developments, the SCAQMD began a program of greater enforcement and outreach to developers and builders, and local government dust plan review and enforcement staff.

In response to this situation, the 2002 Coachella Valley State Implementation Plan (CVSIP) was developed, including a Most Stringent Measures analysis and additional control measures. It was adopted by the SCAQMD Governing Board on June 21, 2002. It was adopted by Coachella Valley Association of Government's (CVAG) Executive Committee on June 25, 2002. After comments by U.S. EPA, the SCAQMD Governing Board adopted the 2002 CVSIP Addendum on September 12, 2002, which detailed the 2003 milestone year target and emission budgets.

Since adoption of the 1990 CVSIP, the local Coachella Valley jurisdictions, CVAG, and the SCAQMD have worked closely to implement the various 1990 CVSIP control measures. This team approach has resulted in what was the most comprehensive dust

control program in the nation at that time. The 1996 CVSIP describes the implementation status of these control measures in detail. In the 1994 CVSIP, additional BACM measures were identified. However, by 1996, the Coachella Valley had achieved the PM10 NAAQS and the SCAQMD requested its re-designation to attainment. At that time, the 1994 CVSIP BACM measures were incorporated as contingency measures in the 1996 CV Plan. In response to elevated PM10 levels from 1999 through 2001, the SCAQMD prepared and adopted the 2002 CVSIP, which included a most stringent measures analysis and enhanced control strategy. The 2002 CVSIP demonstrated attainment of the federal PM10 standards by 2006. The 2002 CVSIP described the previous dust control measures, including the original local dust control ordinances and SCAQMD Rules 403 and 403.1, all of which were adopted in 1992 and 1993 and have been SIP-approved by U.S. EPA, and the Clean Streets Management Program.

The 2002 CVSIP summarizes the dust control efforts that arose in response to significant dust control problems and nuisance situations at large construction sites in Spring 1999 and the rise in local PM10 levels above the annual average standard from 1999 through 2001. These programs, which are described in the 2002 CVSIP and summarized below, are continuing, including the expedited implementation of CMAQ-funded PM10 control projects, CVAG and SCAQMD sponsored Compliance Promotion Classes, “dust czars” for each jurisdiction, and a full-time SCAQMD inspector to coordinate SCAQMD and local enforcement activities.

In May 2001, SCAQMD assigned a full-time inspector to the Coachella Valley to improve outreach and compliance with existing dust control regulations. This was in addition to SCAQMD inspectors who had been responding to potential SCAQMD rule violations. In addition, each Coachella Valley jurisdiction has assigned a “dust czar” to coordinate dust control for that jurisdiction (e.g. dust plan review, ordinance enforcement, public and industry outreach, SCAQMD liaison). All “dust czars” have taken the Compliance Promotion Class and have worked with the SCAQMD inspector to address dust sources within their individual jurisdictions.

On October 4, 2002, the SCAQMD Board approved the FY 2002-03 AB 2766 MSRC Discretionary Fund Work Program in Concept totaling $14.95 million. This included the Coachella Valley PM10 Reduction Program; the total amount of Discretionary Funds allocated to this category was $1,000,000. The Coachella Valley Program offers to co-fund qualifying particulate matter reduction projects, focusing on the early implementation of Most Stringent Measures (MSMs) as defined by the SCAQMD in the new Coachella Valley State Implementation Plan. The goal of the MSRC Program is to assist CVAG jurisdictions in effectively and expeditiously implementing MSMs prior to the imposition of mandatory PM10 Reduction Rules by the SCAQMD. The MSRC Program provides qualifying CMAQ projects an 11.47% match against federal CMAQ (TEA-21) funds, a 75% match against AB 2766 Subvention Funds, and a 50% match when other sources of funds are applied. The solicitation mechanism is a Program Announcement and Application, with a proposal receipt period beginning on November 5, 2002 and ending on April 8, 2003. The funding was available on a first-come, first-serve basis and twelve projects were approved for a total of $1,000,000. Leveraged with CMAQ, AB2766 subvention, and other funds, this program resulted in over $5,000,000 of PM10 mitigation and control projects being initiated in the Coachella Valley. Details can be found in the 2003 February and March SCAQMD Governing Board agendas.

The Coachella Valley Air Quality Ad Hoc Task Force (CV Task Force), sponsored by CVAG, is assisting CVAG and the SCAQMD in implementing the 2002 CVSIP. The CV Task Force includes mayors and city council members of all Coachella Valley cities, a County Supervisor from Riverside County, tribal chairs or vice-chairs from all local Indian tribes, CVAG Energy and Environmental Resources subcommittee members (city managers), the Coachella Valley Economic Partnership, and representatives from the local farm bureau, building industry association, developers, Caltrans, as well as staff from SCAQMD, CARB, and U.S. EPA. Other interested stakeholders, including SunLine Transit Agency, Coachella Valley Water District, Southern California Gas Company, the Building Industry Association (BIA), local developers, the Construction Industry Air Quality Coalition (CIAQC), local farmers, and the "dust czars," have also participated. The CV Task Force met on March 12, 2003, to review the initial drafts of the model ordinance, dust control handbook, and memorandum of understanding, which taken together, will implement the local government portion of the 2002 CVSIP control measures.

Localized Cumulative Impacts

Since the power plant air quality impacts can be reasonably estimated through air dispersion modeling (see Operational Modeling Analysis section) the project contributions to localized cumulative impacts can be estimated. To represent past and, to an extent, present projects that contribute to ambient air quality conditions, the Commission staff recommends the use of ambient air quality monitoring data (see Environmental Setting section), referred to as the background. The staff undertakes the following steps to estimate what are additional appropriate present projects that are not represented in the background and reasonably foreseeable projects:

- First, the Commission staff (or the applicant) works with the air district to identify all projects that have submitted, within the last year of monitoring data, new applications for an authority to construct (ATC) or permit to operate (PTO) and applications to modify an existing PTO within six miles of the project site. Beyond six miles there is little or no measurable cumulative overlap between stationary emission sources. The non-photochemical-reactant pollutant emission impacts of the criteria pollutant emissions (i.e., NOx, SOx, CO, PM10 and PM2.5) have, from staff's experience with air dispersion modeling, had a finite time and distance to remain airborne. In Staff's experience of using the USEPA air dispersion models (SCREEN, ISCST3 and AERMOD), staff has never seen any proposed power plant having non-photochemical-reactant pollutant emission impacts which approach or go beyond 10 kilometers (or six miles). This effectively identifies all new emissions that emanate from a single point (e.g., a smoke stack), referred to as "point sources." The submittal of an air district application is a reasonable demarcation of what is "reasonably foreseeable". So, as an example, if the last year of ambient air quality monitoring data from area monitoring stations was 2003, then Commission staff (or the applicant) would ask the air district for all new applications that are not included in the ambient data.
- Second, the Commission staff (or the applicant) works with the air district and local counties to identify any new area sources within six miles of the project site. As opposed to point sources, area sources include sources like agricultural fields,

residential developments or other such sources that do not have a distinct point of emission. New area sources are typically identified through draft or final Environmental Impact Reports (EIR) that are prepared for those sources. The initiation of the EIR process is a reasonable basis on which to determine what is "reasonably foreseeable" for new area sources.

- The data submitted, or generated from the applications with the air district for point sources or initiating the EIR process for area sources provides enough information to include these new emission sources in air dispersion modeling. Thus, the next step is to review the available EIR(s) and permit application(s), determine what sources must be modeled and how they must be modeled.
- Sources that are not new, but may not be represented in ambient air quality monitoring are also identified and included in the analysis. These sources are rare but include existing sources that are co-located with the proposed source (such as an existing power plant). In most cases, the ambient air quality measurements are not recorded close to the proposed project, thus a local major source might not be well represented by the background air monitoring. When these sources are included, it is typically a result of there being an existing source on the project site and the ambient air quality monitoring station being more than two miles away.
- When there are a large number of sources (in some cases 15 to 20 sources) and they are primarily of small emission quantities with higher impacts, the modeling results must be carefully interpreted so that they are not skewed towards the smaller, high-impacting sources. The reason being that while small sources can cause higher impacts, they are typically limited to within a hundred yards or similar close proximity of the source. Therefore, a cumulative interaction with the proposed project emission impacts is unlikely.

Once the modeling results are produced, they are added to the background ambient air quality monitoring data and thus the modeling portion of the cumulative assessment is complete. Due to the use of air dispersion modeling programs in staff's cumulative impacts analysis, the applicant must submit a modeling protocol, based on informational requirements for an application, prior to beginning the investigation of the sources to be modeled in the cumulative analysis. The modeling protocol is typically reviewed, commented on, and eventually approved in the Data Adequacy phase of the licensing procedure. Staff typically assists the applicant in finding sources (as described above), characterizing those sources and interpreting the results of the modeling. However, the actual modeling runs are usually left to the applicant to complete. There are several reasons for this; modeling analyses take time to perform and require significant expertise, the applicant has already performed a modeling analysis of the project alone (see Operational Modeling Analysis section), and the applicant can act on its own to modify the project as the results warrant. Once the cumulative project emission impacts are determined, the necessity to mitigate the project emissions can be evaluated, and the mitigation itself can be proposed by staff and/or applicant (see Mitigation section).

The cumulative assessment for SVEP includes the six other sources shown in AIR QUALITY Table 20. The original list of possible new sources from the SCAQMD included 837 sources for both the SVEP project and the sister project Walnut Creek Energy Park (05-AFC-2). Of the 837 sources identified:

- 146 were VOC sources,
- 46 were not appropriate for modeling (e.g., grain storage),
- 18 had no expected emissions,
- 228 were mobile emissions,
- 116 had throughputs too small to be reasonably considered,
- 197 were too far from SVEP (more than 6 miles),
- 27 had emissions less than 5 lbs/day and were more than 4 miles from SVEP.

This initial culling left 10 facilities to investigate, and 4 of these sources turned out to be simple permit changes that did not constitute new emissions. Of the remaining 6 facilities, which together contain 13 individual sources, the Inland Empire Energy Center (Inland) is the best defined. Inland (currently under construction) was licensed through the Energy Commission and as a result there are extensive modeling parameters available, including specific source location stack parameters and building downwash. For the other sources, not much further information was known. The applicant followed the general modeling guidelines from the U.S. EPA and the AP-42 Emission Factors compendium.

AIR QUALITY Table 20
Facilities Included in the Cumulative Modeling by the Applicant

Facility	Source Type	Facility ID
International Environmental Solutions Corp.	Natural Gas-Fired Kiln	122334
Cal Mat Co.	Asphalt Blending/Batching Equipment	128319
Inland Empire Energy Center, LLC	Power Production Facility	129818
Pomeroy Corp.	Concrete Batch Equipment	141807
Redmart Retail Interiors		144179
Cemex Construction Materials, LP.	Concrete Batch Equipment	144650

The results of this modeling effort in AIR QUALITY Table 21, show that SVEP will contribute to existing violations of the PM10 and PM2.5 ambient air quality standards. The results also show that SVEP will contribute to a new violation of the 1-hour NO_2 and SO_2 State Ambient Air Quality Standards. All of these violations appear to be located within the fence line of the Inland Empire facility, which is one of the six facilities modeled (see AIR QUALITY Table 20).

Ambient air quality assessments are generally concerned with the offsite impacts of a specific facility. Within a facility fence line, worker safety is covered generally by OSHA and workers are not given the same consideration as the general public. Thus, during the Inland licensing case there would have been no cause to investigate the air quality impacts within its own fence lines. However, the Inland fence line is not the SVEP fence

line, thus in this case, the workers within the Inland fence line are considered members of the public.

SVEP contributes a maximum of 16.4 ug/m^3 or approximately 0.8 percent to the new NO_2 violation. The primary contributor to the new NO_2 and SO_2 violations is the periodic test firing of the diesel-fired emergency generator at Inland. The emergency generator will be tested weekly for typically less than one hour. This modeling analysis shows that there will be a new and ongoing potential violation of the 1-hour NO_2 and SO_2 State Ambient Air Quality Standards. However, staff is not confident that these results are reasonably representative of the cumulative impacts and is seeking further refinement of the cumulative analysis from the applicant which will be provided in the Final Staff Assessment.

AIR QUALITY TABLE 21
Cumulative Impacts Modeling Results (ug/m^3)

Pollutant	Averaging Time	Maximum Modeled Concentration (ug/m^3)	Background (ug/m^3)	Total Impact (ug/m^3)	Limiting AAQS (ug/m^3)	Percent of Limiting Standard
NO_2	1-Hour	1,751.1	282	2,033.1	470	**433**
	Annual	22.4	46.6	69	100	69
SO_2	1-Hour	460.1	52.4	512.5	655	78
	24-Hour	53.5	52.5	106	105	**101**
	Annual	10.1	8.0	18.1	80	23
CO	1-Hour	5,756.4	9,200	14,956	23,000	65
	8-Hour	1,588.9	4,978	6,567	10,000	66
PM10	24-Hour	59.7	159	218.7	50	**437**
	Annual	9.2	63.1	72.3	20	**362**
PM2.5	24-Hour	59.7	104	163.7	65	**252**
	Annual	9.2	31.1	40.3	12	**336**

Source: SVEP Cumulative Assessment

Chemically Reactive Pollutant Impacts

The project's gaseous emissions of NOx, SO_2, VOC and ammonia can contribute to the formation of secondary pollutants: ozone and PM10/PM2.5.

Ozone Impacts

There are air dispersion models that can be used to quantify ozone impacts, but they are used for regional planning efforts where hundreds or even thousands of sources are input into the modeling to determine ozone impacts. There are no regulatory agency models approved for assessing single source ozone impacts. However, because of the known relationship of NOx and VOC emissions to ozone formation, it can be said that the emissions of NOx and VOC from the SVEP do have the potential (if left unmitigated) to contribute to higher ozone levels in the region. These impacts would be significant because they would contribute to ongoing violations of the state and federal ozone ambient air quality standards.

PM2.5 Impacts

Secondary PM10 formation, which is assumed to be 100 percent PM2.5, is the process of conversion from gaseous reactants to particulate products. The process of gas-to-particulate conversion, which occurs downwind from the point of emission, is complex and depends on many factors, including local humidity and the presence of air pollutants. The basic process assumes that the SOx and NOx emissions are converted into sulfuric acid and nitric acid first, then react with ambient ammonia to form sulfate and nitrate. The sulfuric acid reacts with ammonia much faster than nitric acid and converts completely to particulate form. Nitric acid reacts with ammonia to form both a particulate and a gas phase of ammonium nitrate. The particulate phase will tend to eventually settle to the ground, however the gas phase can revert back to ammonia and nitric acid. Thus, under the right conditions, ammonium nitrate and nitric acid establish a balance of concentrations in the ambient air. There are two conditions that are of interest, described as “ammonia rich” and “ammonia poor.” The term “ammonia rich” indicates that there is more than enough ammonia to react with all the sulfuric acid and to establish a balance of nitric acid-ammonium nitrate. Further ammonia emissions in this case will not necessarily lead to increases in ambient PM2.5 concentrations. In the case of an “ammonia poor” environment, there is insufficient ammonia to establish a balance and thus additional ammonia will tend to increase PM2.5 concentrations.

The area near Rubidoux in Riverside County has been the subject of an extensive study of ambient ammonia, which found that the area was ammonia rich. Therefore, further ammonia emissions from the SVEP project might not lead to further formation of ammonium nitrate or sulfate. While there will certainly be some conversion from the ammonia emitted from the SVEP project, there is currently no regulatory model that can predict the conversion rate. However, because of the known relationship of NOx and SOx emissions to PM2.5 formation, it can be said that the emissions of NOx and SOx from the SVEP project do have the potential (if left unmitigated) to contribute to higher PM2.5 levels in the region.

Greenhouse Gas Reporting

In addition to regulated criteria pollutants, the combustion of fossil fuels produces air emissions known as greenhouse gases. These include primarily carbon dioxide, nitric oxide, and methane (unburned natural gas). Greenhouse gases are known to contribute to the warming of the earth’s atmosphere. Climate change from rising temperatures represents a risk to California’s economy, public health, and environment (CEC 2003). In 1998, the Energy Commission identified a range of strategies to prepare for an uncertain climate future, including a need to account for the environmental impacts associated with energy production, planning, and procurement (CEC 1998, p.5). In 2003, the Energy Commission recommended that the state should require reporting of greenhouse gas emissions as a condition of state licensing of new electric generating facilities (CEC 2003, p. 42). Staff recommends condition of certification **AQ-SC9**, which requires the project owner to report the quantities of relevant greenhouse gases emitted as a result of electric power production.

The calculations specified in condition of certification **AQ-SC9** are based on standard protocols developed by the Intergovernmental Panel on Climate Change (IPCC), an international scientific body that is responsible for developing a common methodology

for developing greenhouse gas inventories for all world governments to follow. The calculations are for those emissions associated with on-site fuel storage; all fuel combustion associated with the prime mover of the power plant; and the associated emissions of the on-site power transformer equipment. The greenhouse gas emissions to be reported in condition of certification **AQ-SC9** are carbon dioxide, methane, nitric oxide and sulfur hexafluoride emissions that are directly associated with the production and transmission of electric power.

The IPCC-approved methodology for calculating the greenhouse gas emissions in an inventory is particular to the type of fossil fuel burned. In their Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual, the IPCC established the factors for oxidation, fuel-based emissions, and global warming potential.

COMPLIANCE WITH LORS

FEDERAL

The SCAQMD has not yet issued a preliminary Prevention of Significant Deterioration (PSD) permit as part of the Preliminary Determination of Compliance (PDOC) for the project. The PDOC, issued January 19, 2007 is expected to serve as the basis for the PSD permit for this project when the SCAQMD is delegated PSD authority for the SVEP. PSD delegation is expected post certification and will be specifically limited to this project.

STATE

The applicant will demonstrate that the project will comply with Section 41700 of the California State Health and Safety Code, which restricts emissions that would cause nuisance or injury, with the SCAQMD PDOC (issued January 19, 2007) and the CEC staff's affirmative finding for the project.

LOCAL

Compliance with specific SCAQMD rules and regulations is discussed below via excerpts from the PDOC (SCAQMD 2007b). For a more detailed discussion of the compliance of the project, please refer to the PDOC (SCAQMD 2007a).

SCAQMD Regulation II-Permits

RULE 212-Standards for Approving Permits

Rule 212 requires that a person shall not build, erect, install, alter, or replace any equipment, the use of which may cause the issuance of air contaminants or the use of which may eliminate, reduce, or control the issuance of air contaminants without first obtaining written authorization for such construction from the Executive Officer. A public notice will be issued followed by a 30-day public comment period prior to issuance of a permit. Compliance is expected.

SCAQMD Regulation IV-Prohibitions

RULE 401-Visible Emissions

This rule limits visible emissions to an opacity of less than 20 percent (Ringlemann No.1), as published by the United States Bureau of Mines. It is unlikely, with the use of the SCR /CO catalyst configuration that there will be visible emissions. Compliance is expected.

RULE 402-Nuisance

This rule requires that a person not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which cause, or have a natural tendency to cause injury or damage to business or property. Compliance is expected.

RULE 403-Fugitive Dust

The purpose of this rule is to reduce the amount of particulate matter entrained in the ambient air as a result of man-made fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions. The provisions of this rule apply to any activity or man-made condition capable of generating fugitive dust such as construction activities. This rule prohibits emissions of fugitive dust beyond the property line of the emission source. The applicant will be taking steps to prevent and/or reduce or mitigate fugitive dust emissions from the project site. Such measures include covering loose material on haul vehicles, watering, and using chemical stabilizers when necessary. The installation and operation of the CTGs is expected to comply with this rule.

RULE 407-Liquid and Gaseous Air Contaminants

This rule limits CO emissions to 2,000 ppmvd and SO_2 emissions to 500 ppmvd, averaged over 15 minutes. For CO, the CTGs will meet the BACT limit of 6.0 ppmvd @ 15% O_2, 1-hr average, and the turbines will be conditioned as such. For SO_2, equipment which complies with Rule 431.1 is exempt from the SO_2 limit in Rule 407. The applicant will be required to comply with Rule 431.1 and thus the SO_2 limit in Rule 407 will not apply.

RULE 409-Combustion Contaminants

This rule restricts the discharge of contaminants from the combustion of fuel to 0.1 grain per cubic foot of gas, calculated to 12% CO_2, averaged over 15 minutes. The equipment is expected to meet this limit.

RULE 431.1-Sulfur Content of Gaseous Fuels

SVEP will use pipeline quality natural gas which will comply with the 16 ppmv sulfur limit, calculated as H_2S, specified in this rule.

RULE 475-Electric Power Generating Equipment

Requirements of the rule specify that the equipment must comply with a PM10 mass emission limit of 11 lb/hr or a PM10 concentration limit of 0.01 grains/dscf. The PM10 mass emissions from the SVEP turbines are estimated to be 6 lb/hr. Therefore, compliance is expected.

Regulation XIII – New Source Review

RULE 1303(a) and Rule 2005(b)(1)(A)-BACT – LMS100 CTGs

These rules state that the Executive Officer shall deny the Permit to Construct for any new source which results in an emission increase of any non-attainment air contaminant, any ozone depleting compound, or ammonia unless the applicant can demonstrate that BACT is employed for the new source. The applicant has provided a performance warranty which accompanied the initial application package which indicates that each LMS100 operating on a simple cycle can comply with, and for NOx, even exceed the BACT requirements. SCAQMD now considers the more restrictive 1-hour averaging times to be achieved in practice and SVEP will therefore be required to comply with the 1-hour averages for NOx, CO, and VOC as opposed to the 3 hour as was proposed. The proposed project emission characteristics are lower than that required by BACT for the combustion turbines, therefore compliance is expected.

RULE 1303(a) and Rule 2005(b)(1)(A)-BACT – Emergency Fire Pump

The emergency fire pump is required to employ BACT because the maximum daily emissions from this source are expected to exceed 1 lb/day. SVEP will be required to evaluate the technological feasibility of using a particulate trap on the emergency fire pump. In the event that it is not technologically feasible to install a particulate trap to control PM10 emissions, the Tier II BACT levels will apply to the emergency fire pump. BACT for SOx emissions for compression ignition emergency fire pumps is diesel fuel with a sulfur content no greater than 0.0015% by weight. The manufacturer has indicated that this engine can comply with the Tier II emission levels and the user will only purchase diesel fuel with a sulfur content of no greater than 0.0015% by weight. The emergency fire pump is expected to comply with BACT.

RULE 1303(a)-BACT – Cooling Tower

Rule 219(e)(3) provides an exemption for water cooling towers and water cooling ponds not used for evaporative cooling of process water or not used for evaporative cooling of water from barometric jets or from barometric condensers and in which no chromium compounds are contained. The 5-cell cooling tower being proposed at SVEP will meet the requirements of Rule 219(e)(3) and is therefore exempt from NSR. BACT therefore does not apply.

RULE 1303(a)-BACT – Ammonia Storage Tank

A pressure relief valve that will be set at no less than 25 psig will control ammonia emissions from the storage tank. In addition, a vapor return line will be used to control ammonia emissions during storage tank filling operations. Based on the above, compliance with BACT requirements is expected.

Based on the above BACT analysis for the entire project, the 5 CTGs and the emergency fire pump will comply with the current BACT requirements found in Regulation XIII (for the non-RECLAIM pollutants) and in Regulation XX (for the RECLAIM pollutants). BACT for all equipment is satisfied. RULE 1303(b)(1) and Rule 2005(b)(1)(B) - Modeling

The applicant has conducted air dispersion modeling using the U.S. EPA Industrial Source Complex Short Term ISCST3 air dispersion model, Version 3. The Tier 4 Health Risk Assessment was conducted in accordance with guidelines set forth by the California Office of Environmental Health Hazard Assessment (OEHHA) and the California Air Resources Board (CARB). The OEHHA/CARB computer program (HARP) was used to determine the health risk assessment. SCAQMD staff's review of the modeling and HRA analyses concluded that the applicant used U.S. EPA ISCST3 model version 02035 along with the appropriate model options in the analysis for NO_2, CO, PM10, and SO_2. The applicant modeled both the cumulative and individual permit unit impacts for the project. No significant deficiencies in methodology were noted. Therefore, the applicant is expected to comply with BACT for the ammonia storage tank.

RULE 1303(b)(2) and Rule 2005(b)(2)-Offsets – LMS100 PA CTGs

Since SVEP is a new facility with an emissions increase, offsets will be required for all criteria pollutants. SVEP will be included in NOx RECLAIM and as such, NOx increases will be offset with RTCs at a 1.0 to1 ratio. Non-RECLAIM criteria pollutants (CO, VOC, SOx, and PM10) will be offset by either the purchase of Emission Reduction Credits (ERCs) and/or Priority Reserve Credits (PRCs) at a 1.2 to 1 ratio. The facility may elect to offset emission increases using either purchased ERCs or PRCs or any combination thereof as allowed by SCAQMD Rules and Regulations. SVEP has indicated that the required amounts of offsets will be provided prior to issuance of the Facility Permit. Compliance with offset requirements of Rules 1303(b)(2) and 2005(b)(2) is expected.

RULES 1303(b)(3)-Sensitive Zone Requirements and 2005(e)-Trading Zone Restrictions

Both rules state that ERCs must be obtained from the appropriate trading zone. In the case of Rule 1303(b)(3), unless credits are obtained from the Priority Reserve, facilities located in the South Coast Air Basin are subject to the Sensitive Zone requirements specified in Health & Safety Code Section 40410.5. SVEP is located in Zone 2a and is therefore eligible to obtain its ERCs from either Zone 1 or Zone 2a. Similarly in the case of Rule 2005(e), SVEP, because of its location may obtain RECLAIM Trading Credits (RTCs) from either Zone 1 or Zone 2, at its choosing. Compliance is expected with both rules.

RULE 1303(b)(4)-Facility Compliance

The new facility will comply with all applicable Rules and Regulations of the SCAQMD.

RULE 1303(b)(5)-Major Polluting Facilities

Rule 1303(b)(5)(A) – Alternative Analysis

The applicant is required to conduct an analysis of alternative sites, sizes, production processes, and environmental control techniques for the SVEP and to demonstrate that the benefits of the proposed project outweigh the environmental and social costs associated with this project. VSE has performed a comparative evaluation of alternative sites as part of the AFC process and has concluded that the benefits of providing additional electricity and increased employment in the surrounding area will outweigh the environmental and social costs incurred in the construction and operation of the proposed facility. Compliance is expected.

Rule 1303(b)(5)(B) – Statewide Compliance

VSE has certified in the 400-A form that all major sources under its ownership or control in the State of California are in compliance with all federal, state, and local air quality rules and regulations. In addition, VSE has submitted an email to the SCAQMD dated October 19, 2006 stating that "any and all facilities that VSE owns or operates in the State of California (including the proposed SVEP) are in compliance or are on a schedule for compliance with all applicable emission limitations and standards under the Clean Air Act." Therefore, compliance is expected.

Rule 1303(b)(5)(C) – Protection of Visibility

Modeling is required if the source is within a Class I area and the NOx and PM10 emissions exceed 40 TPY and 15TYP respectively. Since the nearest Class I area is located over 28 miles from the proposed SVEP site, modeling for plume visibility is not required, however, the applicant has provided modeling impact data for the Class I areas as part of the AFC process. Compliance is expected.

Rule 1303(b)(5)(D) – Compliance through CEQA

The California Energy Commission's (CEC) certification process is functionally equivalent to the analysis required under CEQA. Since the applicant is required to receive a certification from the CEC, the applicable CEQA requirements and deficiencies will be addressed. Compliance is expected.

RULE 1309.1-Priority Reserve

As part of the recent amendments to Rule 1309.1-Priority Reserve, (September 8, 2006), the SCAQMD Executive Officer committed to hold a public meeting for each project prior to accessing the Priority Reserve. SCAQMD held a public meeting to inform the public about the specifics of the proposed project. The meeting was held on October 17, 2006. Topics discussed included facility emissions, local impacts on schools, and surrounding area. The requirements and compliance status are summarized in the table below:

The following is a direct excerpt from the SCAQMD PDOC:

Rule 1309.1 Requirements and Compliance Determination	
REQUIREMENTS	COMPLIANCE (Yes/No)
Rule 1309.1(c)(1) – Permit condition requiring facility to comply with BARCT for pollutants received from Priority Reserve for all existing sources prior to operation of any new sources	**(YES)** Since there are no existing sources at this facility, BARCT is not applicable and the new equipment will be constructed using BACT for simple cycle power plants. These emission limits the lowest levels achieved in practice under federal LAER. Compliance is expected
Rule 1309.1(c)(2) – The applicant must pay a mitigation fee pursuant to subdivision (g)	**(YES)** The applicant will pay this fee for each pollutant upon securing PRCs.
Rule 1309.1(c)(3) – Conducts due diligence effort approved by the Executive Officer to secure ERCs for requested Priority Reserve pollutants	**(CONTINUOUS)** The applicant has submitted written correspondence to SCAQMD (see letter in file dated September 27, 2006 from Latham & Watkins to Mr. Mohsen Nazemi) which indicates the applicant is in the process of attempting to secure ERCs for the requested Priority Reserve pollutants. SCAQMD has received a letter dated September 27, 2006 which provided information regarding the progress in securing offsets for SVEP. EME secured additional VOC ERCs on October 23, November 8, and November 13, 2006 for a total of 226 lbs/day. No additional ERCs have been purchased as of January 19, 2007. EME will continue to provide progress reports when additional ERCs are secured.
Rule 1309.1(c)(4) – Applicant has the new source fully and legally operational at rated capacity within 3 years following SCAQMD permit to Construct issuance or CEC certification, whichever is later	**(YES)** The applicant is scheduled to have the new facility fully operational at its rated capacity by July 2008.
Rule 1309.1(c)(5) – Applicant must enter into a long-term contract with the State of California to sell at least 50% of the portion of power which it has generated using PRCs	**(YES)** The applicant is a power generator and is engaged in the sale of generated power to end users. Most of the power will be supplied to the state's electrical grid. However, at this time, it is the SCAQMD's understanding that the State of California is not offering long term contracts for the acquisition of power.
Rule 1309.1(c)(6) – Applicant for an in-Basin EGF must purchase PRCs at an offset ratio of 1.2 –to-1.0	**(YES)** The applicant has proposed to purchase both ERCs and PRCs at an offset ration of 1.2-to-1.0.
Rule 1309.1(c)(7) – Applicant for a Downwind Air Basin EGF shall obtain credits at an offset ratio as determined by the downwind air district	**(NOT APPLICABLE)** This facility is located within the South Coast Air Basin (SCAB) and the applicable offset ratio for PRCs in the SCAB is 1.2-to-1.0.
Rule 1309.1(c)(8) – Applicant for Permit to Construct must agree to a permit condition which requires new sources to be fully and legally operational at rated capacity within 3 years. An applicant that is a municipality must have an additional year if the EGF contains a renewable energy component with a rated capacity of at least 50 MW of renewable energy.	**(YES)** The applicant is scheduled to have the new facility fully operational at its rated capacity by July 2008.
BASED ON THE INFORMATION IN THIS TABLE, SVEP CAN COMPLY WITH THE APPLICABLE REQUIREMETS OF RULE 1309.1	

PROPOSED AMENDED RULE 1309.1

On December 1, 2006, the SCAQMD proposed an additional amendment to Rule 1309.1, the Priority Reserve. This amendment identifies three zones within the South Coast Air Basin (Zones 1, 2 and 3) where differing requirements for use of Priority Reserve credits would be established. These zones are based on the ambient air concentrations of PM2.5 (note that the Priority Reserve does not include PM2.5 credits). If a proposed project is located within Zone 1, there are no additional requirements for using the Priority Reserve than the present rule requires. If within Zone 2, the applicant

must pay 150 percent of the fee specified for Zone 1. If within Zone 3, the project might not be able use the Priority Reserve Credits. Based on staff's preliminary assessment of the location of SVEP, the project would be located in Zone 1. The present schedule for adoption of the amended Rule 1309.1 is June or July of 2007.

REGULATION XVII-PREVENTION OF SIGNIFICANT DETERIORATION

The SCAQMD Governing Board, in its action on February 7, 2003, authorized the Executive Officer, upon withdrawal of the U.S. EPA Prevention of Significant Deterioration (PSD) delegation, not to request any further delegation and to allow the U.S. EPA to terminate the SCAQMD's PSD delegation agreement and for U.S. EPA to become the permitting agency for PSD sources in the SCAQMD.

The Board determined that Regulation XVII is inactive upon U.S. EPA's withdrawal of delegation and shall remain inactive unless and until the U.S. EPA provides the SCAQMD with new delegation of authority to act either in full or on a Facility/Permit-Specific basis. The delegation was rescinded on March 3, 2003, by U.S. EPA.

The SCAQMD Governing Board in its April 1, 2005, meeting reaffirmed its previous action on February 7, 2003, to relinquish PSD analysis back to federal government and render Regulation XVII inactive unless the SCAQMD receives new delegation in part or in full from the U.S. EPA.

Based on the Governing Board's actions, this rule is ineffective and no analysis is required for any pollutant subject to federal PSD requirement. The SCAQMD has sent the applicant a notification to contact the U.S. EPA directly for applicability of PSD to the proposed project. SCAQMD sent a letter to the applicant on December 8, 2005, and instructed the applicant to contact U.S. EPA directly regarding implementation of PSD. To staff's knowledge there has been no resolution to this issue, U.S. EPA has not at this time delegated the PSD analysis to the SCAQMD as has been the practice in the last few years. PSD delegation is expected post certification and will be specifically limited to this project.

REGULATION XX-RECLAIM

Rule 2005(g) – Additional Requirements

As with Rule 1303(b)(5) for the Non-RECLAIM pollutants, SVEP has addressed the alternative analysis, statewide compliance, protection of visibility, and CEQA compliance requirements of this rule for NOx. These requirements are essentially the same as those found in Rule 1303(b)(5), subparts A through D for non-RECLAIM pollutants, and are summarized below. Compliance is expected.

Rule 2005(g)(1) – Statewide Compliance

VSE has certified in the 400-A form that all major sources under its ownership or control in the State of California are in compliance with all federal, state, and local air quality rules and regulations. In addition, VSE has submitted an email to the SCAQMD dated October 19, 2006 stating that "any and all facilities that VSE owns or operates in the State of California (including the proposed SVEP) are in compliance or are on a

schedule for compliance with all applicable emission limitations and standards under the Clean Air Act. Therefore, compliance is expected.

Rule 2005(g)(2) – Alternative Analysis

The applicant is required to conduct an analysis of alternative sites, sizes, production processes, and environmental control techniques for the SVEP and to demonstrate that the benefits of the proposed project outweigh the environmental and social costs associated with this project. VSE has performed a comparative evaluation of alternative sites as part of the AFC process and has concluded that the benefits of providing additional electricity and increased employment in the surrounding area will outweigh the environmental and social costs incurred in the construction and operation of the proposed facility. Compliance is expected.

Rule 2005(g)(3) – Compliance through CEQA

The California Energy Commission's (CEC) certification process is a certified regulatory program under CEQA. Since the applicant is required to receive certification from the CEC, the applicable CEQA requirements and deficiencies will be addressed. Compliance is expected.

Rule 2005(g)(4) – Protection of Visibility

Modeling is required if the source is within a Class I area and the NOx emissions exceed 40 TPY. Since the nearest Class I area is located over 28 miles from the proposed SVEP site, modeling from plume visibility is not required, however, the applicant has provided modeling impact data for the Class I areas as part of the AFC process. Compliance is expected.

Rule 2005(h) – Public Notice

SVEP will comply with the requirements for Public Notice found in Rule 212. Therefore compliance with Rule 2005(h) is demonstrated.

Rule 2005(i) – Rule 1401 Compliance.

SVEP will comply with Rule 1401 as demonstrated in the Tier 4 analysis and subsequently reviewed and found to be satisfactory by SCAQMD modeling staff. Compliance is expected.

Rule 2005(j) – Compliance with State and Federal NSR.

SVEP will comply with the provisions of this rule by having demonstrated compliance with SCAQMD NSR Regulations XIII and Rule 2005-NSR for RECLAIM.

REGULATION XXX – TITLE V

SVEP is a Title V facility because the cumulative emissions will exceed the Title V major source thresholds and because it is also subject to the federal acid rain provisions. The initial Title V permit will be processed and the required public notice will be sent along with the Rule 212(g) Public Notice, which is also required for this project. U.S. EPA is afforded the opportunity to review and comment on the project within a 45-day review period. Compliance is expected.

NOTEWORTHY PUBLIC BENEFITS

The SCAQMD Board, through the resolution adopting both Rules 1309.1 and 1315, gave the SCAQMD two explicit directives regarding the funds received from for the sale of Priority Reserve Credits through Rule 1309.1 to qualifying electric generating facilities. The first directive was to spend all of the funds as close as possible to the main project site of the purchasing electric generating facility on projects that may improve the ambient air quality. The second directive was that one third of the funds be used to promote the installation of renewable energy projects, including solar power. The SCAQMD has taken it upon itself to implement this resolution on the funds already collected through the sale of Priority Reserve Credits to electric generating facilities. The expenditure of these funds, both current and future, may result in improvements of the ambient air quality both near the project site and the air district in general.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

The Romoland School District (RSD) submitted comments regarding the SVEP project on June 6, 2006. RSD had several areas of concern, one of which was air quality related. RSD raises three specific issues, for which they offer six specific remedies. The issues raised are paraphrased as follows:

1. RSD raises concerns over the use of Priority Reserve Credits to extent that it is proposed by the applicant, stating that the amount proposed may deplete the SCAQMD Bank for PM10 emission liability.
2. RSD is concerned that the use of Priority Reserve Credits will not provide direct local mitigation to the area surrounding the SVEP project site.
3. RSD supports a data request by staff for the applicant to pursue mitigation measures near the project site.

Since the RSD issued this comment letter, staff has been able to research the SCAQMD rules and regulations. Staff is reasonably confident that the information the SCAQMD has shared with staff will resolve the issues raised by the RSD.

The PM10 within the SCAQMD Offset Account is approximately 13,840 lbs/day, as of 2002. The SVEP PM10 liability is 458 lbs/day. Therefore, staff is reasonably certain that the SVEP PM10 liability (as well as SOx and CO liabilities) will not significantly diminish the Offset Account.

While staff does agree that the Priority Reserve Credits are not guaranteed to be local to the SVEP project site, they do represent real emission reductions throughout the SCAQMD. Some of these emission reductions will have beneficial air quality impacts in the project vicinity, but that quantification is not possible. However, given the SCAQMD Board resolutions (see Noteworthy Public Benefits, above) staff does recognize that there may be improvements in air quality in the communities surrounding the power plant site as a direct result of the expenditure of funds collected from the sale of Priority Reserve Credits to electric generating facilities.
Staff sees no further need for the applicant to seek out mitigation measures near the project site due to the SCAQMD Board resolutions. However, the projects suggested by the RSD as remedies to the issues they raised are reasonable projects, in staff's

opinion, for the SCAQMD to consider in regards to the Board resolutions. The projects proposed by the RSD are paraphrased below:

1. Electrification of irrigation or oil transfer pumps,
2. Conversion of area trucks from diesel to compressed natural gas.
3. Electrification of equipment in local rail yards.
4. Improvement of roadways or intersections to alleviate traffic delays and their associated emissions.
5. Apply post-combustion controls to local boilers (including school boilers).

The RSD also suggested applying BACT controls to local industrial sources to further reduce and control emissions. The SCAQMD applies the strictest BACT and BARCT (best available retro-fit control) in the nation. Thus, in staff's opinion, further controls are not a reasonable expectation or feasible.

The applicant, in response to the RSD comment letter, had several additional projects for local mitigation that they recommend that the SCAQMD consider.

1. Retro-fit of diesel powered school buses with particulate traps or oxidation catalysts.
2. Replace existing diesel powered school buses with alternative-fueled school buses.
3. Repower off-road heavy-duty diesel equipment with new lower-emission diesel engines with particulate traps.
4. Replace portable diesel engines with microturbines.
5. Provide low-sulfur diesel fuel to local passenger locomotives.
6. Expand liquefied natural gas refueling infrastructure.

CONCLUSIONS

At this time, the Sun Valley Energy Project applicant has not secured or identified sufficient emission reduction credits to offset the air quality emission impacts of NOx, SO_2, VOC, PM10 and PM2.5. Unmitigated, these pollutants have the potential to cause significant environmental impacts. However, as discussed in the Adequacy of Proposed Mitigation section, is the applicant has a plan to secure adequate mitigation for all potential air quality impacts. If the applicant complies with staff's proposed Condition **AQ-SC7**, then staff believes that the project is adequately mitigated. With respect to VOC, the applicant has secured 226 lbs/day of emission reduction credits which more than satisfies the South Coast Air Quality Management District New Source Review requirements. However, the applicant is potentially double counting the VOC emission reduction credits as mitigating for both the Walnut Creek Energy Park and the Sun Valley Energy Project VOC emission impacts. Therefore, staff believes that the applicant needs to provide proof of adequate VOC ERCs to fully offset the SVEP project.

The staff proposes the following Conditions of Certification. These Conditions include the SCAQMD proposed Conditions from the PDOC, with appropriate staff proposed

verification language for each condition, as well as Energy Commission staff proposed conditions.

The Staff has proposed a number of permit conditions that are in addition to the permit conditions that the SCAQMD has proposed in the PDOC. In most cases the staff proposed permit conditions deal with air quality issues that the SCAQMD are not required to address. The Staff proposed Conditions of Certification are summarized as follows. Conditions **AQ-SC1** through **AQ-SC5** are construction related permit conditions. Condition **AQ-SC6** deals with the administrative procedures for project modifications. Condition **AQ-SC7** is a reporting requirement for the providing of emission offsets. Condition **AQ-SC9** is the Commission Greenhouse Gas reporting requirement. Condition **AQ-SC10** is a quarterly emission reporting requirement. Conditions **AQ-SC11** and **AQ-SC12** are cooling tower permit requirements. Staff proposes these conditions for the operation of the cooling tower because the SCAQMD does not consider cooling towers as permit units (see discussion of SCAQMD rule 1303(a)-BACT for Cooling Towers above), and thus they do not include permit conditions. However staff believes that they are potential sources of PM10/PM2.5 as shown in our analysis, and thus permit limits and verifications of those permit limits should be proposed. Conditions **AQ-1** through **AQ-16** are the SCAQMD permit conditions with staff proposed verification language (note that **AQ-2** has been intentionally skipped).

PROPOSED CONDITIONS OF CERTIFICATION

The SCAQMD has a unique system of structuring and numbering their permit conditions. In order for the reader to avoid confusion between how the SCAQMD numbers their permit conditions and how the Energy Commission staff normally numbers permit conditions, the staff prepared the following table that cross references the conditions in the PDOC with the conditions presented by staff in this analysis.

AIR QUALITY Table 22
SCAQMD Permit Conditions with Corresponding Commission Conditions of Certification

SCAQMD Permit Conditions	CEC Condition of Certification	Condition Description
LMS100PA CTGs		
A63.1	AQ-1	Monthly contaminant emission limit (PM10, CO, SOx & VOC)
SCAQMD Rule 2004	AQ-2	Annual contaminant emissions limit (NO_2).
A99.1	AQ-3	Relief from 2.5ppm NOx limit during commissioning, startup and shut down. Commissioning, startup & shutdown time limits. Limit of number of startups per year.
A99.2	AQ-3	Relief from 6.0 ppm CO limit during commissioning, startup and shut down. Commissioning, startup & shutdown time limits. Limit of number of startups per year.
A99.3	AQ-3	NOx limit during the turbine commissioning, not to exceed 12 months.
A99.4	AQ-3	NOx limit for interim time period of end of commissioning to continuous emission monitoring system (CEMS) certification, not to exceed 12 months.
A195.1	AQ-4	CO emission limit of 6.0 ppm @ 15% O_2 averaged over 1-hour.
A195.2	AQ-4	NOx emission limit of 2.5 ppm @ 15% O_2 averaged over 1-hour.
A193.3	AQ-4	VOC emission limit of 2.0 ppm @ 15% O_2 averaged over 1-hour.
A327.1	AQ-5 Rescinding relief.	Relief from emission limits, under Rule 475; project may violate either the mass emission limit or concentration emission limit, but not both at the same time.
C1.1	AQ-6	Limits the fuel usage for each turbine to 393 mmcf per month.
D12.1	AQ-6	Requires the installation of a fuel flow meter.
D29.1	AQ-7	Requires source tests for specific pollutants (NOx, CO, SOx, VOC, PM10, NH3) within 180 days of initial startup.
D29.2	AQ-8	Requires source tests for ammonia

		(NH3); quarterly for the first year and annually thereafter.
D29.3	AQ-7 Requires annual source testing for (NOx, CO, SOx, VOC and PM10/PM2.5)	Requires source tests for specific pollutants (SOx, VOC, PM10) once every three years.
D82.1	AQ-9	Requires the installation of CEMS for CO emissions.
D82.2	AQ-9	Requires the installation of CEMS for NOx emissions.
E193.1	AQ-SC10	Requires that the ***turbines*** be operated within the mitigation measures stipulated in the Commission Decision.
H23.1	NA	Establishes the applicability of 40CFR60 Subpart KKKK for the project contaminant NOx and SOx.
I296.1	AQ-16	Prohibited from operation unless the operator hold sufficient RTCs for the CTGs.
K40.1	AQ-7, -8 & -9	Source test reporting requirements.
K67.1	AQ-10	Requires record keeping of fuel use during commissioning, prior to and after CEMs certification.
SCR/CO Catalyst		
A195.4	AQ-11	Establishes the 5 ppm ammonia slip limit.
D12.2	AQ-12	Requires a flow meter for the ammonia injection.
D12.3	AQ-13	Requires a temperature meter at the SCR inlet.
D12.4	AQ-14	Requires a pressure gauge to measure the differential pressure across the SCR grid.
E179.1	AQ-12 & -13	Defines “continuously record” for D12.2 and D12.3 as recording once an hour based on the average of continuous monitoring for that hour.
E179.2	AQ-14	Defines “continuously record” for D12.4 as recording once a month based on the average of continuous monitoring for that month.
E193.1	AQ-SC10	Requires that the ***SCR/CO catalyst*** be operated within the mitigation measures stipulated in the Commission Decision.
Ammonia Storage Tank		
C157.1	See Hazardous Material	Requires the installation of a

	section	pressure relief valve.
E144.1	See Hazardous Material section	Requires venting of the storage tank during filling only to the vessel from which it is being filled.
E193.1	AQ-SC10	Requires that the ***Ammonia Storage Tank*** be operated within the mitigation measures stipulated in the Commission Decision.
Emergency Firewater Pump		
C1.3	AQ-15	Limited to 199.99 hours per year (for operation and ready test firing).
D12.5	AQ-15	Requires the installation of a non-resettable time meter.
D12.6	AQ-15	Requires the installation of a non-resettable fuel meter.
B61.1	AQ-15	Restricts the sulfur content of the diesel fuel to no more than 15 ppm by weight.
E193.1	AQ-SC10	Requires that the ***firewater pump*** be operated within the mitigation measures stipulated in the Commission Decision.
E193.2	AQ-15	Establishes the operational restrictions for the firewater pump, including a restriction of 50 hours/year for ready test firing.
I296.2	AQ-16	Prohibited from operation unless the operator holds sufficient RTCs for the firewater pump.
K67.2	AQ-15	Required record keeping for the firewater pump.
Portable Architectural Coating Equipment		
K67.3	NA	Required record keeping of thinners and no-thinners architectural applications (paint).

AQ-SC1 Air Quality Construction Mitigation Manager (AQCMM): The project owner shall designate and retain an on-site AQCMM who shall be responsible for directing and documenting compliance with conditions **AQ-SC3**, **AQ-SC4** and **AQ-SC5** for the entire project site and linear facility construction. The on-site AQCMM may delegate responsibilities to one or more AQCMM Delegates. The AQCMM and AQCMM Delegates shall have full access to all areas of construction on the project site and linear facilities, and shall have the authority to stop any or all construction activities as warranted by applicable construction mitigation conditions. The AQCMM and AQCMM Delegates may have other responsibilities in addition to those described in this condition. The AQCMM shall not be terminated without written consent of the CPM.

Verification: At least 60 days prior to the start of ground disturbance, the project owner shall submit to the CPM for approval, the name, resume, qualifications, and contact information for the on-site AQCMM and all AQCMM Delegates. The AQCMM and all Delegates must be approved by the CPM before the start of ground disturbance.

AQ-SC2 Air Quality Construction Mitigation Plan (AQCMP): The project owner shall provide an AQCMP, for approval, which details the steps that will be taken and the reporting requirements necessary to ensure compliance with conditions **AQ-SC3, AQ-SC4** and **AQ-SC5**.

Verification: At least 60 days prior to the start of any ground disturbance, the project owner shall submit the AQCMP to the CPM for approval. The CPM will notify the project owner of any necessary modifications to the plan within 30 days from the date of receipt. The AQCMP must be approved by the CPM before the start of ground disturbance.

AQ-SC3 Construction Fugitive Dust Control: The AQCMM shall submit documentation to the CPM in each Monthly Compliance Report (MCR) that demonstrates compliance with the following mitigation measures for the purposes of preventing all fugitive dust plumes from leaving the project site and linear facility routes. Any deviation from the following mitigation measures shall require prior CPM notification and approval.

a) All unpaved roads and disturbed areas in the project and linear construction sites shall be watered as frequently as necessary to comply with the dust mitigation objectives of **AQ-SC4**. The frequency of watering may be reduced or eliminated during periods of precipitation.

b) No vehicle shall exceed 10 miles per hour within the construction site.

c) The construction site entrances shall be posted with visible speed limit signs.

d) All construction equipment vehicle tires shall be inspected and washed as necessary to be cleaned free of dirt prior to entering paved roadways.

e) Gravel ramps of at least 20 feet in length must be provided at the tire washing/cleaning station.

f) All unpaved exits from the construction site shall be graveled or treated to prevent track-out to public roadways.

g) All construction vehicles shall enter the construction site through the treated entrance roadways, unless an alternative route has been submitted to and approved by the CPM.

h) Construction areas adjacent to any paved roadway shall be provided with sandbags or other measures as specified in the Storm Water Pollution Prevention Plan (SWPPP) to prevent run-off to roadways.

i) All paved roads within the construction site shall be swept at least twice daily (or less during periods of precipitation) on days when construction activity occurs to prevent the accumulation of dirt and debris.

j) At least the first 500 feet of any public roadway exiting from the construction site shall be swept at least twice daily (or less during periods of precipitation) on days when construction activity occurs or on any other day when dirt or runoff from the construction site is visible on the public roadways.

k) All soil storage piles and disturbed areas that remain inactive for longer than 10 days shall be covered, or shall be treated with appropriate dust suppressant compounds.

l) All vehicles that are used to transport solid bulk material on public roadways and that have the potential to cause visible emissions from the material shall be provided with a cover, or the materials shall be sufficiently wetted and loaded onto the trucks in a manner to provide at least two feet of freeboard.

m) Wind erosion control techniques (such as windbreaks, water, chemical dust suppressants, and/or vegetation) shall be used on all construction areas that may be disturbed. Any windbreaks installed to comply with this condition shall remain in place until the soil is stabilized or permanently covered with vegetation.

Verification: The project owner shall include in the MCR (1) a summary of all actions taken to maintain compliance with this condition, (2) copies of any complaints filed with the air district in relation to project construction, and (3) any other documentation deemed necessary by the CPM and AQCMM to verify compliance with this condition. Such information may be provided via electronic format or disk at the project owner's discretion.

AQ-SC4 Dust Plume Response Requirement: The AQCMM or an AQCMM Delegate shall monitor all construction activities for visible dust plumes. Observations of visible dust plumes that have the potential to be transported (1) off the project site or (2) 200 feet beyond the centerline of the construction of linear facilities or (3) within 100 feet upwind of any regularly occupied structures not owned by the project owner indicate that existing mitigation measures are not resulting in effective mitigation. The AQCMM or Delegate shall implement the following procedures for additional mitigation measures in the event that such visible dust plumes are observed:

Step 1: The AQCMM or Delegate shall direct more intensive application of the existing mitigation methods within 15 minutes of making such a determination.

Step 2: The AQCMM or Delegate shall direct implementation of additional methods of dust suppression if Step 1 specified above fails to result in adequate mitigation within 30 minutes of the original determination.

Step 3: The AQCMM or Delegate shall direct a temporary shutdown of the activity causing the emissions if Step 2 specified above fails to result in effective mitigation within one hour of the original determination. The activity shall not restart until the AQCMM or Delegate is satisfied that appropriate additional mitigation or other site conditions have changed so that visual dust plumes will not result upon restarting the shutdown source.

The owner/operator may appeal to the CPM any directive from the AQCMM or Delegate to shut down an activity, provided that the shutdown shall go into effect within one hour of the original determination, unless overruled by the CPM before that time.

Verification: The AQCMP shall include a section detailing how the additional mitigation measures will be accomplished within the time limits specified.

AQ-SC5 Diesel-Fueled Engines Control: The AQCMM shall submit to the CPM, in the MCR, a construction mitigation report that demonstrates compliance with the following mitigation measures for the purposes of controlling diesel construction-related emissions. Any deviation from the following mitigation measures shall require prior CPM notification and approval.

a) All diesel-fueled engines used in the construction of the facility shall be fueled only with ultra-low sulfur diesel, which contains no more than 15 ppm sulfur.

b) All diesel-fueled engines used in the construction of the facility shall have clearly visible tags issued by the on-site AQCMM showing that the engine meets the conditions set forth herein.

c) All construction diesel engines, which have a rating of 100 hp or more, shall meet, at a minimum, the Tier 2 California Emission Standards for Off-Road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, section 2423(b)(1) unless certified by the on-site AQCMM that such engine is not available for a particular item of equipment. In the event a Tier 2 engine is not available for any off-road engine larger than 100 hp, that engine shall be equipped with a Tier 1 engine. In the event a Tier 1 engine is not available for any off-road engine larger than 100 hp, that engine shall be equipped with a catalyzed diesel particulate filter (soot filter), unless certified by engine manufacturers or the on-site AQCMM that the use of such devices is not practical for specific engine types. For purposes of this condition, the use of such devices is “not practical” if, among other reasons:

(1) There is no available soot filter that has been certified by either the California Air Resources Board or U.S. Environmental Protection Agency for the engine in question; or

(2) The construction equipment is intended to be on-site for 10 days or less.

(3) The CPM may grant relief from this requirement if the AQCMM can demonstrate that they have made a good faith effort to comply with this requirement and that compliance is not possible.

d) The use of a soot filter may be terminated immediately if one of the following conditions exists, provided that the CPM is informed within 10 working days of the termination:

(1) The use of the soot filter is excessively reducing normal availability of the construction equipment due to increased downtime for

maintenance, and/or reduced power output due to an excessive increase in backpressure.

(2) The soot filter is causing or is reasonably expected to cause significant engine damage.

(3) The soot filter is causing or is reasonably expected to cause a significant risk to workers or the public.

(4) Any other seriously detrimental cause which has the approval of the CPM prior to the termination being implemented.

e) All heavy earthmoving equipment and heavy duty construction related trucks with engines meeting the requirements of (c) above shall be properly maintained and the engines tuned to the engine manufacturer's specifications.

f) All diesel heavy construction equipment shall not remain running at idle for more than five minutes, to the extent practical.

Verification: The project owner shall include in the MCR (1) a summary of all actions taken to maintain compliance with this condition, (2) copies of all diesel fuel purchase records, (3) a list of all heavy equipment used on site during that month, including the owner of that equipment and a letter from each owner indicating that equipment has been properly maintained, and (4) any other documentation deemed necessary by the CPM and AQCMM to verify compliance with this condition. Such information may be provided via electronic format or disk at the project owner's discretion.

AQ-SC6 The project owner shall submit to the CPM for review and approval any modification proposed by the project owner to any project air permit. The project owner shall submit to the CPM any modification to any permit proposed by the SCAQMD or U.S. EPA, and any revised permit issued by the SCAQMD or U.S. EPA, for the project.

Verification: The project owner shall submit any proposed air permit modification to the CPM within five working days of its submittal either by 1) the project owner to an agency, or 2) receipt of proposed modifications from an agency. The project owner shall submit all modified air permits to the CPM within 15 days of receipt.

AQ-SC The project owner shall provide emission reduction credits to offset turbine exhaust and emergency equipment NOx, VOC, SOx, PM10 and PM2.5 emissions in the form and amount required by the District. RECLAIM Trading Credits (RTCs) shall be provided for NOx as is necessary to demonstrate compliance with Condition of Certification **AQ-16**.

Emission reduction credits (ERCs) or SCAQMD Priority Reserve Credits (PRCs) shall be provided for SOx (45 lb/day) and PM10 (465 lb/day). Emission reduction credits only shall be provided for VOC (180 lb/day, includes offset ratio of 1.2).

The project owner shall surrender the ERCs, if applicable, for SOx, VOC and PM10 from among those that are listed in the table below or a modified list, as allowed by this condition. If additional ERCs are submitted, the project owner

shall submit an updated table including the additional ERCs to the CPM. The project owner shall request CPM approval for any substitutions, modifications, or additions of credits listed.

The CPM, in consultation with the District, may approve any such change to the ERC list provided that the project remains in compliance with all applicable laws, ordinances, regulations, and standards, the requested change(s) will not cause the project to result in a significant environmental impact, and the SCAQMD confirms that each requested change is consistent with applicable federal and state laws and regulations.

The project owner shall request from the SCAQMD a report of the NSR Ledger Account for the project after the SCAQMD has issued the Permit to Construct. This report is to specifically identify the ERCs and PRCs used to offset the project emissions.

Certificate Number	Amount (lbs/day)	Pollutant

Verification: The project owner shall submit to the CPM the NSR Ledger Account, showing that the project's offset requirements have been met, 15 days prior to initiating construction for Priority Reserve credits, and 30 days prior to turbine first fire for traditional ERCs. Prior to commencement of construction, the project owner shall obtain sufficient RTCs to satisfy the District's requirements for the first year of operation as prescribed in Condition of Certification **AQ-16**. If the CPM approves a substitution or modification to the list of ERCs, the CPM shall file a statement of the approval with the project owner and commission docket. The CPM shall maintain an updated list of approved ERCs for the project.

AQ-SC8 Deleted

AQ-SC9 If the project owner does not participate in the voluntary California Climate Action Registry, then the project owner shall report on a quarterly basis to the CPM the quantity of greenhouse gases (GHG) emitted as a direct result of facility electricity production as follows:

The project owner shall maintain a record of fuel use in units of million-Btu (MMBtu) for all fuels burned on site for the purpose of power production. These fuels shall include but are not limited to: (1) all fuel burned in the combustion turbines, (2) HRSGs (if applicable) or auxiliary boiler (if applicable), and (3) all fuels used in any capacity for the purpose of turbine startup, shutdown, operation or emission controls.

The project owner may perform annual source tests of CO_2 and CH_4 emissions from the exhaust stacks while firing the facility's primary fuel, using the following test methods or other test methods as approved by the CPM. The project owner shall produce fuel-based emission factors in units of lbs GHG per MMBtu of fuel burned from the annual source tests. If a secondary fuel is approved for the facility, the project owner may also perform these source tests while firing the secondary fuel.

Pollutant	Test Method
CO_2	U.S. EPA Method 3A
CH_4	U.S. EPA Method 18 (VOC measured as CH_4)

As an alternative to performing annual source tests, the project owner may use the Intergovernmental Panel on Climate Change (IPCC) Methodologies for Estimating Greenhouse Gas Emissions (MEGGE). If MEGGE is chosen, the project owner shall calculate the CO_2, CH_4 and N_2O emissions using the appropriate fuel-based carbon content coefficient (for CO_2) and the appropriate fuel-based emission factors (for CH_4 and N_2O).

The project owner shall convert the N_2O and CH_4 emissions into CO_2 equivalent emissions using the following IPCC Global Warming Potentials (GWP): 310 for N_2O (1 pound of N_2O is equivalent to 310 pounds of CO_2) and 21 for CH_4.

The project owner shall maintain a record of all SF_6 that is used for replenishing on-site transformers. At the end of each reporting period, the project owner shall total the mass of SF_6 used and convert that to a CO_2 equivalent emission using the IPCC GWP of 23,900 for SF_6.

On a quarterly basis, the project owner shall report the CO_2 and CO_2 equivalent emissions from the described emissions of CO_2, N_2O, CH_4 and SF_6.

Verification GHG emissions that are not reported to the California Climate Action Registry shall be reported to the CPM as part of the Quarterly Operation Reports required by condition of certification **AQ-SC10**.

AQ-SC10 The project owner shall submit to the CPM Quarterly Operation Reports, following the end of each calendar quarter, that include operational and emissions information as necessary to demonstrate compliance with the Conditions of Certification herein. The Quarterly Operation Report will specifically note or highlight incidences of noncompliance.

Verification: The project owner shall submit the Quarterly Operation Reports to the CPM and APCO no later than 30 days following the end of each calendar quarter.

AQ-SC11 The project owner shall perform quarterly cooling tower recirculating water quality testing, or shall provide for continuous monitoring of conductivity as an indicator, for total dissolved solids content.

Verification: The project owner shall submit to the CPM cooling tower recirculating water quality tests or a summary of continuous monitoring results and daily recirculating water flow in the Quarterly Operation Report (**AQ-SC10**). If the project owner uses continuous monitoring of conductivity as an indicator for total dissolved solids content, the project owner shall submit data supporting the calibration of the conductivity meter and the correlation with total dissolved solids content at least once each year in a Quarterly Operation Report (**AQ-SC10**).

AQ-SC12 The cooling tower daily PM10 emissions shall be limited to 10.7 lb/day. The cooling tower shall be equipped with a drift eliminator to control the drift fraction to 0.0005 percent of the circulating water flow. The project owner shall estimate daily PM10 emissions from the cooling tower using the water quality testing data or continuous monitoring data and daily circulating water flow data collected on a quarterly basis. Compliance with the cooling tower PM10 emission limit shall be demonstrated as follows:
PM10 = cooling water recirculation rate * total dissolved solids concentration in the blowdown water * design drift rate.

Verification: The project owner shall submit to the CPM daily cooling tower PM10 emission estimates in the Quarterly Operation Report (**AQ-SC10**).

AQ-1 The project owner shall limit the emissions from **each** gas fired combustion turbine train exhaust stacks as follows:

Contaminant	Emissions Limit
PM10	2,778 lbs in any one month
CO	6,532 lbs in any one month
SOx	281 lbs in any one month
VOC	887 lbs in any one month

For the purpose of this condition, the limit(s) shall be based on the emissions from a single exhaust stack.

The project owner shall calculate the emission limit(s) by using the monthly fuel use data and the following emission factors: PM10: 6.93 lb/mmscf, VOC: 2.00 lb/mmscf & SOx: 0.71 lb/mmscf.

The project owner shall calculate the emission limit(s) for CO during the commissioning period, using fuel consumption data and the following emission factors: 125.87 lb/mmscf.

The project owner shall calculate the emission limit(s) for CO after commissioning period and prior to the CO CEMS certification, using fuel consumption data and the following emission factors: 18.46 lb/mmscf. The emission rate shall be recalculated in accordance with Condition **AQ-10** if the

approved CEMS certification test results in emission concentration higher than 6 ppmv.

The project owner shall calculate the emission limit(s) for CO after the CO CEMS certification, based on readings from the certified CEMS. In the event the CO CEMS is not operating or the emissions exceed the valid upper range of the analyzer, the emissions shall be calculated with the following emission factor: 18.46 lbs/mmscf.

During Commissioning, the CO emissions shall not exceed 7,681 lbs/month and the VOC emissions shall not exceed 904 lbs/month.

Verification: The project owner shall submit all emission calculations, fuel use, CEM records and a summary demonstrating compliance of all emission limits stated in this Condition for approval to the CPM on a quarterly basis in the quarterly emissions report (**AQ-SC10**).

AQ-2 The project owner/operator shall not produce emissions of oxides of nitrogen from the facility, including the firewater pump and all five gas turbines combined, that exceed the RECLAIM Trading Credits holdings required in Condition of Certification **AQ-16** within a calendar year.

Verification: The project owner/operator shall submit to the CPM no later than 60 days following the end of each calendar year, the SCAQMD required (via Rule 2004) Quarterly Certification of Emissions (or equivalent) for each quarter and the Annual Permit Emissions Program report (or equivalent) as prescribed by the SCAQMD Executive Officer.

AQ-3 The 2.5 ppm NOx emission limit and the 6.0 ppm CO emission limit shall not apply during turbine commissioning, start-up and shutdown. The commissioning period shall not exceed 134 operating hours per turbine from the initial start-up. Following commissioning, start-ups shall not exceed 60 minutes and the number of start-ups shall not exceed 350 per year. Following commissioning, shutdowns shall not exceed 10 minutes. Written records of commissioning, start-ups and shutdowns shall be kept and made available to SCAQMD and submitted to the CPM for approval.

The 123.46 lb/mmscf NOx emission limit(s) shall only apply during interim reporting period during initial turbine commissioning and the 10.86 lbs/mmscf shall apply only during the interim reporting period after the initial turbine commissioning period, to report RECLAIM emissions. The interim period shall not exceed 12 months from the initial start-up date.

Verification: The project owner shall provide the SCAQMD and the CPM with the written notification of the initial start-up date no later than 60 days prior to the startup date. The project owner shall submit, commencing one month from the time of gas turbine first fire, a monthly commissioning status report throughout the duration of the commissioning phase that demonstrates compliance with this condition and the emission limits of Condition **AQ-13**. The monthly commissioning status report shall include criteria pollutant emission estimates for each commissioning activity and total

commissioning emission estimates. The monthly commissioning status report shall be submitted to the CPM until the report includes the completion of the initial commissioning activities. The project owner shall provide start-up and shutdown occurrence and duration data as part as part of the Quarterly Operation Report (**AQ-SC10**). The project owner shall make the site available for inspection of the commissioning and startup/shutdown records by representatives of the District, CARB and the Commission.

AQ-4 The 2.5 PPM NOx emissions limit(s) are averaged over 60 minutes at 15 percent oxygen, dry basis.

The 6.0 ppm CO emission limit(s) are averaged over 60 minutes at 15 percent oxygen, dry basis.

The 2.0 ppm ROG emission limit(s) are averaged over 60 minutes at 15 percent oxygen, dry basis.

The 5.0 ppm NH_3 emission limit(s) are averaged over 60 minutes at 15 percent oxygen, dry basis.

Verification: The project owner shall submit to the CPM for approval all emissions and emission calculations on a quarterly basis as part of the quarterly emissions report of Condition of Certification **AQ-SC10**.

AQ-5 The project owner may at no time purposefully exceed either the mass or concentration emission limits set forth in Conditions of Certification **AQ-1, -2, -3** or **-4**.

Verification: The project owner shall submit to the CPM for approval all emissions and emission calculations on a quarterly basis as part of the quarterly emissions report of Condition of Certification **AQ-SC10**.

AQ-6 The project owner shall limit the fuel usage from each turbine to no more than 393 mmscf of pipeline quality natural gas in any one month. The operator shall install and maintain a fuel flow meter and recorder to accurately indicate and record the fuel usage being supplied to each turbine.

Verification: The project owner shall submit to the CPM for approval all fuel usage records on a quarterly basis as part of the quarterly emissions report of Condition of Certification **AQ-SC10**.

AQ-7 The project owner shall conduct an initial source test and annually thereafter for NOx, CO and NH3 and annually thereafter for SOx, VOC and PM10 of each gas turbine exhaust stack in accordance with the following requirements:

- The project owner shall submit a source test protocol to the SCAQMD and the CPM 45 days prior to the proposed source test date for approval. The protocol shall include the proposed operating conditions of the gas turbine, the identity of the testing lab, a statement from the lab certifying that it meets

the criteria of SCAQMD Rule 304, and a description of all sampling and analytical procedures.

- The initial source test shall be conducted no later than 180 days following the date of first fire.
- The SCAQMD and CPM shall be notified at least 10 days prior to the date and time of the source test.
- The source test shall be conducted with the gas turbine operating under maximum, average and minimum loads.
- The source test shall be conducted to determine the oxygen levels in the exhaust.
- The source test shall measure the fuel flow rate, the flue gas flow rate and the turbine generating output in MW.
- The source test shall be conducted for the pollutants listed using the methods**,** averaging times**,** and test locations indicated and as approved by the CPM:

Pollutant	Method	Averaging Time	Test Location
NOx	SCAQMD Method 100.1	1 hour	Outlet of SCR
CO	SCAQMD Method 100.1	1 hour	Outlet of SCR
SOx	SCAQMD approved method	SCAQMD approved averaging time	Fuel Sample
VOC	SCAQMD approved method	1 hour	Outlet of SCR
PM10 (and as a surrogate for PM2.5)	SCAQMD approved method	SCAQMD approved averaging time	Outlet of SCR
Ammonia	SCAQMD Methods 5.3 and 207.1 or U.S. EPA Method 17.	1 hour	Outlet of SCR

- The source test results shall be submitted to the SCAQMD and the CPM no later than 60 days after the source test was conducted.
- All emission data is to be expressed in the following units:
  1. ppmv corrected to 15% oxygen dry basis,
  2. pounds per hour,
  3. pounds per million cubic feet of fuel burned and
  4. additionally, for PM10 only, grains per dry standard cubic feet of fuel burned.

- Exhaust flow rate shall be expresses in terms of dry standard cubic feet per minute and dry actual cubic feet per minute.
- All moisture concentrations shall be expressed in terms of percent corrected to 15 percent oxygen.

Verification: The project owner shall submit the proposed protocol for the initial source tests 45 days prior to the proposed source test date to both the SCAQMD and CPM for approval. The project owner shall submit source test results no later than 60 days following the source test date to both the SCAQMD and CPM. The project owner shall notify the SCAQMD and CPM no later than 10 days prior to the proposed initial source test date and time.

AQ-8 The project owner shall conduct source testing of each gas turbine exhaust stack in accordance with the following requirements:

- The project owner shall submit a source test protocol to the SCAQMD and the CPM no later than 45 days prior to the proposed source test date for approval. The protocol shall include the proposed operating conditions of the gas turbine, the identity of the testing lab, a statement from the lab certifying that it meets the criteria of SCAQMD Rule 304, and a description of all sampling and analytical procedures.
- Source testing for ammonia slip only shall be conducted quarterly for the first 12 months of operation and annually thereafter.
- NOx concentrations as determined by CEMS shall be simultaneously recorded during the ammonia test. If the NOx CEMS is inoperable, a test shall be conducted to determine the NOx emission by using SCAQMD Method 100.1 measured over a 60 minute time period.
- Source testing shall be conducted to determine the ammonia emissions from each gas turbine exhaust stack using SCAQMD Method 5.3 and 207.1 or U.S. EPA Method 17 measured over a 1 hour averaging period at the outlet of the SCR.
- The SCAQMD and CPM shall be notified of the date and time of the source testing at least 7 days prior to the test.
- The source test shall be conducted and the results submitted to the SCAQMD and CPM within 45 days after the test date.
- Source testing shall measure the fuel flow rate, the flue gas flow rate and the gas turbine generating output.
- The test shall be conducted when the equipment is operating at 80 percent load or greater.
- All emission data is to be expressed in the following units:
  1. ppmv corrected to 15% oxygen,
  2. pounds per hour,
  3. pounds per million cubic feet of fuel burned and

Verification: The project owner shall submit the proposed protocol for the source tests 45 days prior to the proposed source test date to both the SCAQMD and CPM for approval. The project owner shall notify the SCAQMD and CPM no later than seven days prior to the proposed source test date and time. The project owner shall submit source test results no later than 45 days following the source test date to both the SCAQMD and CPM.

AQ-9 The project owner shall install and maintain a CEMS in each exhaust stack of the combustion turbine trains to measure the following parameters:

NOx concentration in ppmv and CO concentration in ppmv.

Concentrations shall be corrected to 15 percent oxygen on a dry basis. The CEMS will convert the actual CO concentrations to mass emission rates (lb/hr) and record the hourly emission rates on a continuous basis.

The CEMS shall be installed and operated to measure CO concentration over a 15minute averaging time period.

The CEMS shall be installed and operated in accordance with an approved SCAQMD Rule 218 CEMS plan application and the requirements of Rule 2012.

The CO CEMS shall be installed and operating no later than 90 days after initial start-up of the turbine.

The NOx CEMS shall be installed and operating no later than 12 months after initial start-up of the turbine.

During the interim period between the initial start-up and the provisional certification date of the CEMS, the project owner shall comply with the monitoring requirements of Rule 2012 (h)(2) and Rule 2012 (h)(3). Within two weeks of the turbine start-up date, the project owner shall provide written notification to the SCAQMD of the exact date of start-up.

Verification: Within 30 days of certification, the project owner shall notify the CPM of the completion of the certification process for the CEMS.

AQ-10 The project owner shall keep records in a manner approved by the SCAQMD for the following items:

Natural Gas use after CEMS certification
Natural Gas use during the commissioning period
Natural Gas use after the commissioning period and prior to the CEMS certification.

Verification: The project owner shall submit to the CPM for approval all fuel usage records on a quarterly basis as part of the quarterly emissions report of Condition of Certification **AQ-SC10**.

AQ-11 The owner/operator shall determine the hourly ammonia slip emissions from each exhaust stack for each gas turbine individually via both the following formula:

SCAQMD Requirement
NH3 (ppmv) = [a-b*(c*1.2)/1E6]*1E6/b
Where:

a = NH3 injection rate (lb/hr) / 17(lb/lbmol),
b = dry exhaust flow rate (scf/hr) / 385.5 (scf/lbmol),
c = change in measured NOx across the SCR (ppmvd at 15% O2)

The above described ammonia slip calculation procedure shall not be used for compliance determination or emission information determination without corroborative data using an approved reference method for the determination of ammonia for the District.

Energy Commission Requirement
NH3 (ppmv @ 15% O2) = ((a-b*(c/1E6))*1E6/b)*d,
Where:

a = NH3 injection rate(lb/hr)/17(lb/lbmol),
b = dry exhaust gas flow rate (lb/hr)/(29(lb/lbmol), or
b = dry exhaust flow rate (scf/hr) / 385.5 (scf/lbmol),
c = change in measured NOx concentration ppmv corrected to 15% O2 across catalyst, and
d = correction factor.

The correction factor shall be derived through compliance testing by comparing the measured and calculated ammonia slip. The correction factor shall be reviewed and approved by the CPM on at least an annual basis. The correction factor may rely on previous compliance source test results or other comparable analysis as the CPM finds the situation warrants. The above described ammonia slip calculation procedure shall be used for Energy Commission compliance determination for the ammonia slip limit as prescribed in Condition of Certification **AQ-4** and reported to the CPM on a quarterly basis as prescribed in Condition of Certification **AQ-SC10**.

An exceedance of the ammonia slip limit as demonstrated by the above Energy Commission formula shall not in and of itself constitute a violation of the limit. An exceedance of the ammonia slip limit shall not exceed 6 hours in duration. In the event of an exceedance of the ammonia slip limit exceeding 6 hours duration, the project owner shall notify the CPM within 72 hours of the occurrence. This notification must include, but is not limited to: the date and time of the exceedance, duration of the exceedance, estimated emissions as a result of the exceedance, the suspected cause of the exceedance and the corrective action taken or planned. Exceedances of the ammonia limit that are less than or equal to 6 hours in duration shall be noted in a specific section within the Quarterly Report (**AQ-SC10**). This section shall include, but is not limited to: the date and time of the exceedance, duration of the exceedance, and the estimated emissions as a result of the exceedance. Exceedances shall be deemed chronic

if they total more than 10% of the operation for any single exhaust stack. Chronic exceedances must be investigated and redressed in a timely manner and in conjunction with the CPM though the cooperative development of a compliance plan. The compliance plan shall be developed to bring the project back into compliance first and foremost and shall secondly endeavor to do so in a feasible and timely manner, but shall not be limited in scope.

The owner/operator shall maintain compliance with the ammonia slip limit, redress exceedances of the ammonia slip limit in a timely manner, and avoid chronic exceedances of the ammonia slip limit. Exceedances shall be deemed a violation of the ammonia slip limit if they are not properly redressed as prescribed herein.

The owner/operator shall install a NOx analyzer to measure the SCR inlet NOx ppm accurate to within +/- 5 percent calibrated at least once every 12 months.

Verification: The project owner shall include ammonia slip concentrations averaged on an hourly basis calculated via both protocols provided as part of the Quarterly Operational Report required in Condition of Certification **AQ-SC10**. The project owner shall submit all calibration results performed to the CPM within 60 days of the calibration date. The project owner shall submit to the CPM for approval a proposed correction factor to be used in the Energy Commission formula at least once a year but not to exceed 180 days following the completion of the annual ammonia compliance source test. Exceedances of the ammonia limit shall be reported as prescribed herein. Chronic exceedances of the ammonia slip limit shall be identified by the project owner and confirmed by the CPM within 60 days of the fourth quarter Quarterly Operational Report (**AQ-SC10**) being submitted to the CPM. If a chronic exceedance is identified and confirmed, the project owner shall work in conjunction with the CPM to develop a reasonable compliance plan to investigate and redress the chronic exceedance of the ammonia slip limit within 60 days of the above confirmation.

AQ-12 The operator shall install and maintain an ammonia injection flow meter and recorder to accurately indicate and record the ammonia injection flow rate being supplied to each turbine. The device or gauge shall be accurate to within plus or minus 5 percent and shall be calibrated once every twelve months.

Continuously recording is defined for this condition as at least once every hour and is based on the average of the continuous monitoring for that hour.

Verification: The project owner shall submit to the CPM no less than 30 days after installation, a written statement by a California registered Professional Engineer stating that said engineer has reviewed the as-built-designs or inspected the identified equipment and certifies that the appropriate device has been installed and is functioning properly. The project owner shall submit annual calibration results within 30 days of their successful completion.

AQ-13 The operator shall install and maintain a temperature gauge and recorder to accurately indicate and record the temperature in the exhaust as the inlet of the SCR reactor. The gauge shall be accurate to within plus or minus 5 percent and shall be calibrated once every twelve months.

Continuously recording is defined for this condition as at least once every hour and is based on the average of the continuous monitoring for that hour.

Verification: The project owner shall submit to the CPM no less than 30 days after installation, a written statement by a California registered Professional Engineer stating that said engineer has reviewed the as-built-designs or inspected the identified equipment and certifies that the appropriate device has been installed and is functioning properly. The project owner shall submit annual calibration results within 30 days of their successful completion.

AQ-14 The operator shall install and maintain a pressure gauge and recorder to accurately indicate and record the pressure differential across the SCR catalyst bed in inches of water column. The gauge shall be accurate to within plus or minus 5 percent and shall be calibrated once every twelve months.

Continuously recording is defined for this condition as at least once every month and is based on the average of the continuous monitoring for that month.

Verification: The project owner shall submit to the CPM no less than 30 days after installation, a written statement by a California registered Professional Engineer stating that said engineer has reviewed the as-built-designs or inspected the identified equipment and certifies that the appropriate device has been installed and is functioning properly. The project owner shall submit annual calibration results within 30 days of their successful completion.

AQ-15 The project owner shall limit the operating time of the firewater pump to no more than 199.99 hours per year. The firewater pump shall be equipped with a non-resettable elapsed meter to accurately indicate the elapsed operating time of the engine. The firewater pump shall be equipped with a non-resettable totalizing fuel meter to accurately indicate the fuel usage of the engine. The firewater pump shall burn only diesel fuel that contains sulfur compounds less than or equal to 15 ppm by weight.

The project owner shall operate and maintain the firewater pump according to the following requirements:

1. This equipment shall only operate if utility electricity is not available.
2. This equipment shall only be operated for the primary purpose of providing a backup source of power to drive an emergency fire pump.
3. This equipment shall only be operated for maintenance and testing, not to exceed 50 hours in any one year.
4. This equipment shall only be operated under limited circumstances under a Demand Response Program (DRP).
5. An engine operating log shall be kept in writing, listing the date of operation, the elapsed time, in hours, and the reason for operation. The log shall be maintained for a minimum of five years and made available to SCAQMD personnel and CPM upon request.

The project owner shall keep records in a manner approved by the Executive Officer; consisting of the date of operation, the elapsed time in hours, and the reason for operation.

Verification: The project owner shall submit to the CPM no less than 30 days after installation, a written statement by a California registered Professional Engineer stating that said engineer has reviewed the as-built-designs or inspected the identified equipment and certifies that the appropriate devices have been installed and are functioning properly. The project owner shall submit all dates of operation, elapsed time in hours, and the reason for each operation in the Quarterly Operations Report (**AQ-SC10**).

AQ-16 The project equipment shall not be operated unless the project owner demonstrates to the SCAQMD Executive Officer that the facility holds sufficient RTCs to offset the prorated annual emissions increase for the first compliance year of operation. In addition, this equipment shall not be operated unless the project owner demonstrates to the Executive Officer that, at the commencement of each compliance year after the first compliance year of operation, the facility hold sufficient RTCs in an amount equal to the annual emission increase. The project owner shall submit all such information to the CPM for approval.

To comply with this condition, the project owner shall hold a minimum of 195,418.86 lbs/year of NOx RTCs for the first year of operation and 153,208.86 lbs/year there after.

Verification: The project owner shall submit all identified evidence demonstrating compliance to the CPM on an annual basis as part of the annual compliance report.

ACRONYMS

AQCMM	Air Quality Construction Mitigation Manager
AQCMP	Air Quality Construction Mitigation Plan
CARB	California Air Resources Board
BACT	Best Available Control Technology
bhp	brake horse power
CEC	California Energy Commission (or Energy Commission)
CEQA	California Environmental Quality Act
CO	Carbon Monoxide
CPM	(CEC) Compliance Project Manager
ERC	Emission Reduction Credit
FDOC	Final Determination Of Compliance
gr	Grains (1 gr $\cong$ 0.0648 grams)
HRSG	Heat Recovery Steam Generator
ISCST3	Industrial Source Complex Short Term, version 3
MMBtu	Million British thermal units
MW	Megawatts (1,000,000 Watts)
NH_3	Ammonia
NO_2	Nitrogen Dioxide
NOx	Oxides of Nitrogen *or* Nitrogen Oxides
NSR	New Source Review
PDOC	Preliminary Determination Of Compliance
PM10	Particulate Mater less than 10 microns in diameter
PM2.5	Particulate Mater less than 2.5 microns in diameter
ppm	Parts Per Million
ppmv	Parts Per Million by Volume
ppmvd	Parts Per Million by Volume, Dry
PRC	Priority Reserve Credit
PSA	Preliminary Staff Assessment (this document)
PSD	Prevention of Significant Deterioration
RECLAIM	Regional Clean Air Incentives Market
RTC	RECLAIM Trading Credit
SCAQMD	South Coast Air Quality Management SCAQMD (also: District)
scf	Standard Cubic Feet
SCR	Selective Catalytic Reduction
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SO_3	Sulfate
SOx	Oxides of Sulfur
U.S. EPA	United States Environmental Protection Agency
VOC	Volatile Organic Compounds
SVEP	Sun Valley Energy Project

REFERENCES

CARB 2006a (California Air Resources Board). Ambient Air Quality Standards. May 17, 2006. http://www.arb.ca.gov/aqs/aaqs2.pdf

CARB 2006b (California Air Resources Board). California Ambient Air Quality Data, 1980-2004 (CD-ROM #PTSD-06-022-CD & #PTSD-06-021-CD

CARB 2006c (California Air Resources Board). Almanac Emission Projection Data (published in 2006). http://www.arb.ca.gov/ei/emsmain/emsmain.htm

CEC 1998 (California Energy Commission). 1997 Global Climate Change, Greenhouse Gas Emissions Reduction Strategies for California, Volume 2, Staff Report. 1998.

CEC 2003 (California Energy Commission). 2003 Integrated Energy Policy Report. December 2003.

City of Industry 2006a. (The City of Industry, California). Initial Study for: 911 Bixby Drive, Building Demolition. January 31, 2006.

SCAQMD 2003 (South Coast Air Quality Management District). Air Quality Standards Compliance Report. September 2003.

SCAQMD 2007a (South Coast Air Quality Management District). Preliminary Determination of Compliance for the Sun Valley Energy Project. Submitted to the California Energy Commission, January 23, 2007.

VSE 2005a (Valley del Sol Energy , LLC). Application for Certification. November 2005.

VSE 2006a (Valley del Sol Energy, LLC). Response to Data Requests April 2006.

Yannayon, US EPA, April 25, 2006 Personal telephone conversation.

Attachment 1

Data Concerning the Priority Reserve Credits
From the South Coast Air Quality District

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

March 9, 2007

Terry O'Brien
Deputy Director
California Energy Commission
System Assignment & Facility Siting Division
1516 Ninth Street, MS-29
Sacramento, CA 95814-5512

Subject: Rule 1309.1 – Priority Reserve

Dear Terry:

This is a follow-up to our telephone conversations and my subsequent meeting with the California Energy Commission (CEC) staff (Paul Richins and Joe Loyer) on February 1, 2007 regarding the South Coast Air Quality Management District's (AQMD's) Rule 1309.1 – Priority Reserve.

First I would like to thank you and your staff for your participation in the development of amendments to AQMD's New Source Review (NSR) rules, in particular Rule 1309.1 – Priority Reserve in relation to permitting of new or expansion/repowering of existing power plants. As you know, the AQMD has made several amendments to its NSR rules to address the California energy crisis which occurred in the early 2000s and most recently in 2006 to address CEC's projections for potential electrical generation shortfalls in Southern California (South of Path 23) for the upcoming summers by providing access to AQMD's offset accounts to obtain emission credits for construction of new power plants.

As part of our discussions, CEC has requested additional information regarding the AQMD's Priority Reserve and in particular regarding sources of credits used in AQMD's offset accounts. CEC has also inquired about the mitigation fees obtained for purchase of offset credits from AQMD's offset accounts. In response to CEC's inquires I have attached the official signed copy of AQMD Governing Board's Resolution for Rule 1309.1 amendments adopted on September 8, 2006. As you can see, on page 4 of the Resolution the Governing Board has directed staff as follows:

"**BE IT FURTHER RESOLVED**, that the Governing Board hereby directs that staff shall use all mitigation fee proceeds collected pursuant to paragraph (f) of PAR 1309.1 – Priority Reserve to fund PM-10, CO and SOx emission reduction programs as close as possible to the new or modified source of emissions and one third of the mitigation fee proceeds collected be used to promote the installation of renewable energy projects, including solar power, in communities where the new power plants will be located and to work with utilities and other interested parties to assist staff in establishing an effective process to implement this directive; monitor the cost of PM-10, CO and SOx reductions achieved; review and report, at least annually, on the adequacy of the mitigation fee level"

During our February 1, 2007 meeting with CEC staff we provided CEC with the following information:

- Summary of AQMD's NSR Tracking System
- AQMD's Annual Status Reports regarding Regulation XIII – New Source Review for the last ten years (1995-2005)
- AQMD's Board item regarding issuance of Request For Proposal for renewable energy projects in communities surrounding ten electrical generating facilities
- AQMD's letter to Roger Johnson of CEC dated May 19, 2006 providing information on past projects funded using Rule 1309.1 mitigation fees obtained from power plants

In addition, during our meeting we provided a breakdown by zip code and by equipment type for some of the sources of credits used in the AQMD's offset accounts for the period 2003-2004. We also provided CEC staff information related to AQMD's Board item dated October 6,2006, on establishing a $PM_{2.5}$ significant threshold and calculation methodology for estimating $PM_{2.5}$ emissions. At the conclusion of our February 1, 2007 meeting CEC staff indicated that the information provided to them was very helpful and should address the main issues that CEC was trying to address regarding Priority Reserve credits. Subsequently CEC has requested that, in particular, we formally provide CEC with the information related to the breakdown of sources of credits for 2003-2004 reporting period so it can be used for your staff analysis of power plant applications.

I apologize for not getting this information to you earlier, but since our meeting AQMD staff has conducted further analysis of the sources of credits used in our AQMD offset accounts. As a result, attached please find information regarding breakdown by zip codes and equipment types of sources of credits for the reporting periods 2003-2004 (which was shared with CEC staff at our meeting), as well as for period 2002-2003.

Based on the information provided here, as well as the information provided to CEC staff previously and during our February 1, 2007 meeting, I am hopeful that we have addressed all of the main concerns and issues that CEC had commented to us related to AQMD's Rule 1309.1 – Priority Reserve. Please feel free to contact me at 909-396-2662 if you have any questions.

Sincerely,

Mohsen Nazemi, P.E.
Assistant Deputy Executive Officer
Engineering and Compliance

MN:ph

cc: Roger Johnson, CEC
Paul Richins, CEC
Joe Loyer, CEC
Barbara Baird, AQMD
Laki Tisopulos, AQMD

Attachments
(cecterryobrine3907)

RESOLUTION NO. 06-26

A Resolution of the Governing Board of the South Coast Air Quality Management District (Governing Board) certifying that the proposed adoption of Proposed Amended Rule 1309.1 – Priority Reserve is exempt from the requirements of the California Environmental Quality Act (CEQA).

A Resolution of the Governing Board amending Rule 1309.1 – Priority Reserve.

A Resolution of the Governing Board of the South Coast Air Quality Management District approving Inland Energy's request for inter-district transfer of Volatile Organic Compound Emission Reduction Credits from the South Coast Air Quality Management District to the Antelope Valley Air Quality Management District and the Mojave Desert Air Quality Management District.

WHEREAS, the AQMD staff reviewed the proposed project and determined that it is exempt from the California Environmental Quality Act (CEQA) pursuant to Public Resources Code section 21080(b)(6) and CEQA Guidelines section 15271(A); and

WHEREAS, the Governing Board has determined in accordance with the Legislature's intent, as expressed in Public Resources Code section 21080(b)(6), that it is appropriate to move forward with that portion of Rule 1309.1 dealing with thermal power plants (EGFs); and

WHEREAS, the Governing Board has determined that the socioeconomic impact assessment of Proposed Amended Rule 1309.1 – Priority Reserve, is consistent with the Governing Board March 17, 1989 and October 14, 1994 Socioeconomic Resolution for rule adoption; and

WHEREAS, the Governing Board has determined that the socioeconomic assessment of the Proposed Amended Rule 1309.1 – Priority Reserve, complies with the provisions of Health and Safety Code Sections 40440.8, 40728.5 and 40920.6; and

WHEREAS, the Governing Board has reviewed and considered the staff's findings related to cost impacts of Proposed Amended Rule 1309.1 – Priority Reserve, as set forth in the socioeconomic impact assessment, and hereby finds and determines that the cost impacts are as set forth in that assessment; and

WHEREAS, a socioeconomic impact assessment concluded that Proposed Amended Rule 1309.1 – Priority Reserve, will not impose any additional compliance costs on affected sources, and as such, will not result in any adverse socioeconomic impacts; and

WHEREAS, the Governing Board has determined that Proposed Amended Rule 1309.1 – Priority Reserve, is not a control measure in the 1997 Air

Quality Management Plan (AQMP) amended in 1999 and thus is not ranked by cost-effectiveness relative to other AQMP control measures in the amended 1997 AQMP; and

WHEREAS, the Governing Board has determined that a need exists to amend Rule 1309.1 – Priority Reserve, to provide qualifying electrical generation facilities (EGFs) limited, temporary access to the priority reserve for PM-10, SOx and CO credits subject to meeting conditions specified in the rule; and

WHEREAS, the Governing Board obtains its authority to adopt, amend, or repeal rules and regulations from California Health and Safety Code Sections 39002, 40000, 40001, 40440, 40441, 40463, 40702, 40709.6 (inter-basin offsets), 40725 through 40728, 41508, and 42300; and

WHEREAS, the Governing Board has determined that Proposed Amended Rule 1309.1 – Priority Reserve, has been written or displayed so that its meaning can be easily understood by the persons affected by it; and

WHEREAS, the Governing Board has determined that Proposed Amended Rule 1309.1 – Priority Reserve, as proposed to be amended, is in harmony with, and not in conflict with or contradictory to, existing federal or state statutes, court decisions, or regulations; and

WHEREAS, the Governing Board has determined that Proposed Amended Rule 1309.1 – Priority Reserve, as proposed to be amended, does not impose the same requirements as any existing state or federal regulations and are necessary and proper to execute the powers and duties granted to, and imposed upon, the District; and

WHEREAS, the Governing Board in adopting Proposed Amended Rule 1309.1 – Priority Reserve, as proposed to be amended, references the following statutes which the AQMD hereby implements, interprets or makes specific: Health and Safety Code Sections 42300, 40709.6, 40920.5, federal Clean Air Act Sections 110, 172, 173, 182 and 189 (42 U.S.C. Sections 7410, 7502, 7503, 7511a, and 7513a); and Health and Safety Code Sections 40001, 40702, and 40900; and

WHEREAS, a public hearing has been properly noticed in accordance with the provisions of Health and Safety Code Section 40725; and

WHEREAS, the Governing Board has held a public hearing in accordance with all provisions of law; and

WHEREAS, the AQMD specifies the manager of Proposed Amended Rule 1309.1 – Priority Reserve, as the custodian of the documents or other materials which constitute the record of proceedings upon which the adoption of this proposed amendment is based, which are located at the South Coast Air Quality Management District, 21865 Copley Drive, Diamond Bar, California; and

WHEREAS, the Governing Board of the South Coast Air Quality Management District has received a request from Inland Energy to approve an inter-district offset transaction for Volatile Organic Compound Emission Reduction Credits; and

WHEREAS, the Governing Board of the South Coast Air Quality Management District obtains its authority to approve inter-district offset transactions from Section 40709.6 of the California Health and Safety Code and South Coast Air Quality Management District Rule 1309(i); and

WHEREAS, the Governing Board of the South Coast Air Quality Management District has determined that the South Coast Air Quality Management District is an upwind district to the Antelope Valley Air Quality Management District and the Mojave Desert Air Quality Management District; and

WHEREAS, the Governing Board of the South Coast Air Quality Management District has determined that the South Coast Air Quality Management District is in a worse state nonattainment status than the Antelope Valley Air Quality Management District and the Mojave Desert Air Quality Management District for ozone (for which Volatile Organic Compounds is a precursor); and

WHEREAS, the Governing Board of the South Coast Air Quality Management District has determined that the inter-district transfer request for Volatile Organic Compound Emission Reduction Credits by Inland Energy will not have an adverse impact on air quality, public health, or the regional economy; and

WHEREAS, the Governing Board of the South Coast Air Quality Management District has determined that the requested Volatile Organic Compound Emission Reduction Credits inter-district offset transfers meet the requirements specified in Section 40709.6 of the California Health and Safety Code and South Coast Air Quality Management District Rule 1309(i).

WHEREAS, the AQMD Governing Board finds and determines, taking into consideration the factors in §(d)(4)(D) of the Governing Board Procedures, that the modifications adopted which have been made to Proposed Amended Rule 1309.1 - Priority Reserve since notice of public hearing was published do not significantly change the meaning of the proposed rule within the meaning of Health and Safety Code §40726 and would not constitute significant new information pursuant to CEQA Guidelines §15088.5; and

NOW, THEREFORE, BE IT RESOLVED that the Governing Board of the South Coast Air Quality Management District does hereby approve the inter-district transfer of up to 2500 pounds per day for the Inland Energy City of Palmdale project and up to 2500 pounds per day for the Inland Energy City of Victorville project for a cumulative total of up to 5000 pounds per day of Volatile Organic Compound Emission Reduction Credits from the South Coast Air Quality Management District to Antelope

Valley Air Quality Management District and the Mojave Desert Air Quality Management District.

BE IT FURTHER RESOLVED, that the AQMD Governing Board does hereby certify the Notice of Exemption for Proposed Amended Rule 1309.1 – Priority Reserve, as proposed to be amended, has been completed in compliance with the CEQA Guidelines Sections 15002 (k)(i), 15061 (b)(i) and 15271 (a) and that it has been presented to the Governing Board, whose members reviewed, considered and approved the information therein prior to acting on Proposed Amended Rule 1309.1 – Priority Reserve; and

BE IT FURTHER RESOLVED, that the Governing Board does hereby approve the Socioeconomic Impact Assessment; and

BE IT FURTHER RESOLVED, that the Governing Board does hereby adopt, pursuant to the authority granted by law, Proposed Amended Rule 1309.1 – Priority Reserve, as set forth in the attached and incorporated herein by reference; and

BE IT FURTHER RESOLVED, that the Governing Board hereby directs staff to submit Proposed Amended Rule 1309.1 – Priority Reserve, to the United States Environmental Protection Agency for revisions to the State Implementation Plan; and

BE IT FURTHER RESOLVED, that the Governing Board hereby directs staff to monitor the status of project installations and report back to the Board if an extension of the 2008 sunset date in PAR 1309.1 – Priority Reserve is advisable; and

BE IT FURTHER RESOLVED, that the Governing Board hereby directs staff to monitor the PM-10, CO and SOx credit balance in the Priority Reserve and present the Governing Board with recommendations in the event that any of these credit balances does or is likely to fall below 500 pounds per day, including the transfer of up to 1,500 lbs per day of any of these pollutants to the Priority Reserve if available; and

BE IT FURTHER RESOLVED, that the Governing Board hereby directs that staff shall use all mitigation fee proceeds collected pursuant to paragraph (f) of PAR 1309.1 - Priority Reserve to fund PM-10, CO and SOx emission reduction programs as close as possible to the new or modified source of emissions and one third of the mitigation fee proceeds collected be used to promote the installation of renewable energy projects, including solar power, in communities where the new power plants will be located and to work with utilities and other interested parties to assist staff in establishing an effective process to implement this directive; monitor the cost of PM-10, CO and SOx reductions achieved; review and report, at least annually, on the adequacy of the mitigation fee levels; and

BE IT FURTHER RESOLVED, that the Governing Board directs the Executive Officer to conduct at least one community meeting in the vicinity of any power plant accessing credits from the Priority Reserve to solicit public input regarding local environmental impacts prior to the issuance of a preliminary determination of compliance required by CEC and issuance of permits to construct by SCAQMD; and

BE IT FURTHER RESOLVED, that the Governing Board directs staff return with recommendations as soon as practical to amend Rule 1309.1 – Priority Reserve to address issues of siting electrical generating facilities within communities in the AQMD, that are disproportionately impacted by adverse air quality.

Attachments

AYES: Antonovich, Burke, Carney, Loveridge, Pulido, Silva, Wilson, and Yates.

NOES: Reyes Uranga.

ABSENT: Ovitt, Perry and Verdugo-Peralta.

Dated: 9-8-06

Saundra McDaniel, Clerk of the Board

Orphan Shutdown & Orphan Reduction Credits to AQMD's Offset Accounts for 2003-2004
(pounds PM10 per day)

Zip	Valid NSR Credit Total
91739	406
92223	394
91765	386
90001	208
91502	153
92705	147
91326	110
91706	96
90660	71
92553	64
90301	62
90023	57
92530	50
91352	46
92676	42
90245	34
91746	29
92373	27
92780	24
90250	22
91342	21
90036	20
90670	20
91702	20
91752	20
90003	18
90731	18
92509	18
90810	17
91748	17
91766	17
90241	16
91803	16
92704	16
92879	16
90040	14
92882	14
90803	12
91730	12
91745	12
91762	12
92337	12
92618	12
90058	11
91764	11
91107	10
91761	10
90640	9

Zip	Valid NSR Credit Total
90802	9
92630	9
90222	8
91355	8
91406	8
92407	8
92683	8
90063	7
91710	7
92502	7
90247	6
90723	6
90744	6
91311	6
91711	6
92707	6
90045	5
90248	5
91732	5
91733	5
92335	5
92507	5
92883	5
90059	4
90501	4
90601	4
90813	4
90846	4
92220	4
92867	4
90012	3
90021	3
90047	3
90232	3
90249	3
90280	3
90502	3
91350	3
91763	3
91789	3
92648	3
92821	3
90024	2
90278	2
90503	2
90638	2
90720	2
90804	2

Zip	Valid NSR Credit Total
91367	2
91506	2
92201	2
92583	2
92627	2
92801	2
92802	2
92841	2
90011	1
90014	1
90022	1
90033	1
90038	1
90066	1
90089	1
90201	1
90220	1
90262	1
90506	1
90710	1
90746	1
90805	1
91040	1
91383	1
91411	1
91423	1
91605	1
91768	1
91770	1
91786	1
92234	1
92262	1
92324	1
92408	1
92411	1
92504	1
92570	1
92614	1
92626	1
92650	1
92663	1
92708	1
92806	1
92807	1
92869	1
92870	1
92880	1

Total for All Zip Codes: 3,130
Total for Top 13 Zip Codes: 2,204 (70% of Total)

Note: Credits deposited at 80 % of the values shown to reflect actual emissions.

Orphan Shutdown & Orphan Reduction Credits to AQMD's Offset Accounts for 2003-2004
(pounds PM10 per day)

Valid NSR	Equipment Description
986	ABRASIVE BLASTING
555	TURBINE ENGINE
304	SPRAYBOOTHS
241	AGGREGATE OPERATIONS
158	HEATERS AND FURNACES
150	ASPHALT OPERATIONS
130	PAINT PRODUCTION
107	BOILERS
77	SPRAY EQUIPMENT OPEN
68	RUBBER PRODUCTION
45	TAR POT
41	TANKS PLATING AND SURFACE PREP
36	ICE
33	FLOUR AND FEED PRODUCTION
27	STORAGE SILOS AND TANKS
25	SOLDER LEVELING SOLDERING MACHINE
24	CONCRETE BATCH EQUIPMENT
22	OVENS
17	CLAY PRODUCTION
11	PLASTIC/RESIN SIZE REDUCTION
9	DROP FORGE
8	SAND HANDLING EQUIPMENT FOUNDRY
7	AFTERBURNERS AND FLARES
6	CIRCUIT BOARD ETCHER, OTHER
5	ELECTROLYTIC PROCESS
4	NATURAL FERTILIZER CONVEYING
3	TEXTILE PROCESSING
3	SOIL TREAT VAPOR EXTRACT GASOLINE UNDER
3	PRINTING PRESS
3	PETROLEUM COKE CONVEYING
3	DEEP FAT FRYER
3	CLEANING, MISCELLANEOUS SOLVENT WIPE
3	Activated Carbon Adsorber Drum Vent s.s.
2	SOFTENING AND PREEXPANSION SYSTEM
2	ALFALFA CONVEYING
1	SYNTHETIC FERTILIZER PRODUCTION
1	MISC MATERIALS SIZE CLASSIFICATION
1	GREEN WASTE SCREENING
1	GARNETTING PAPER/POLYESTER POLYESTER
1	FERRIC CHLORIDE PRODUCTION
1	DAY TANKER ASPHALTIC
1	Crude Oil/Gas/H2OSeparation>=30<400BPD
1	CHROMIUM OXIDE REACTION
1	CARPET PROCESSING SYSTEM
Total: 3130	

Orphan Shutdown & Orphan Reduction Credits to AQMD's Offset Accounts for 2003-2004:
Breakdown by Equipment Category for Top 13 Zip Codes
(pounds PM10 per day)

Valid NSR	bcat/ccat_desc
920	ABRASIVE BLASTING (OPEN)
555	TURBINE ENGINE
155	AGGREGATE OPERATIONS
142	ASPHALT BLENDING/BATCHING EQUIPMENT
130	PAINT PRODUCTION
104	SPRAY BOOTH
63	SYNTHETIC RUBBER BLENDING
45	KILN AND FUNACES
22	STORAGE SILOS AND TANKS
16	BOILER
15	CONCRETE BATCH EQUIPMENT
10	BULK LOAD/UNLOAD SOLIDS FLOUR
10	FLOUR MILLING
9	OVENS
5	ICE
2	TANK, PLATING
1	PRINTING PRESS SCREEN (ALL)
Total: 2204	

Orphan Shutdown & Orphan Reduction Credits to AQMD's Offset Accounts for 2002-2003
(pounds PM10 per day)

Zip	Valid NSR	Zip	Valid NSR	Zip	Valid NSR
92831	1809	92832	10	90640	2
90293	546	92833	10	90720	2
92335	209	92612	9	90746	2
92646	180	91311	8	91329	2
91768	175	92647	8	91802	2
92313	175	92801	8	92630	2
91706	102	92814	8	92653	2
90806	101	90221	7	92703	2
90670	75	90840	7	92823	2
90222	66	91722	7	92835	2
91765	66	90025	6	90003	1
90280	65	90091	6	90012	1
90745	55	90274	6	90021	1
91101	50	90807	6	90039	1
92408	49	91340	6	90245	1
90701	43	91733	6	90247	1
92602	41	91750	6	90250	1
91761	40	90404	5	90260	1
90723	38	91748	5	90262	1
90802	37	92316	5	90301	1
90744	30	92324	5	90602	1
90047	23	92557	5	90630	1
91789	22	90013	4	90706	1
92807	22	90031	4	91107	1
90040	21	90201	4	91343	1
90063	21	90805	4	91383	1
90813	21	91710	4	91504	1
91105	21	91767	4	91744	1
90058	18	92555	4	91763	1
92704	18	92606	4	91766	1
91406	17	92660	4	92201	1
92373	16	92868	4	92236	1
92627	16	90045	3	92276	1
91762	15	90249	3	92337	1
92376	15	90277	3	92503	1
91730	14	90610	3	92507	1
92618	14	90731	3	92570	1
90810	12	91016	3	92583	1
91702	12	91352	3	92648	1
92865	12	91355	3	92683	1
91745	11	91764	3	92728	1
90054	10	91803	3	92780	1
90248	10	90014	2	92883	1
91605	10	90261	2		

Total for All Zip Codes:	4599	
Total for Top 13 Zip Codes:	3569	(78 % of Total)

Note: Credits deposited at 80 % of the values shown to reflect actual emissions.

Orphan Shutdown & Orphan Reduction Credits to AQMD's Offset Accounts for 2002-2003
(pounds PM10 per day)

Valid NSR	Equipment Description
1948	ABRASIVE BLASTING
834	BOILER
411	TURBINE ENGINE
339	HEATER/FURNACE
146	AGGREGATE PRODUCTION
139	SPRAY OPERATIONS
111	ASPHALT OPERATIONS
86	FOOD AND FEED OPERATIONS
80	I C E
61	PETROLEUM COKE OPERATIONS
61	AFTERBURNER AND FLARE
60	CONCRETE OPERATIONS
48	PLATING AND SURFACE PREP
41	PAPER CONVEYING
29	COPPER OPERATIONS
26	PLASTIC/RESIN SIZE REDUCTION
24	OVEN
22	DROP FORGE
12	ORGANIC CHEMICALS MISC
12	PAINTS BLENDING
10	STORAGE TANK AND SILO
10	BAGHOUSE
7	CIRCUIT BOARD ETCHER
6	ADHESIVES BLENDING
6	CLAY BLENDING
6	LANDFILL GAS COLLECTION (>50 WELLS)
6	SOLDER OPERATIONS
6	WASTE WATER EVAPORATION
5	SEMICONDUCTOR MANUFACTURING OPERATIONS
4	CONTAINER FILLING INK
4	DEEP FAT FRYER
4	FLUX BLENDING
4	INDOOR TARGET SHOOTING
4	RAILROAD CAR UNLOADING
3	LIME & LIMESTONE BLENDING
3	POLYVINYL CHLORIDE EXTRUDER
3	RUBBER ROLL MILL (SYNTHETIC)
3	SAND HANDLING
2	"PLASTICS & RESINS, PRODUCTION"
2	BATTERY MANUFACTURING
1	"CLEANING, MISCELLANEOUS SOLVENT WIPE"
1	"FILLING MACHINE, DRY POWDER"
1	AUTO BODY SHREDDING
1	COFFEE CLEANING
1	ELECTRICAL INSULATING OIL TREATING
1	GALVANIZING EQUIPMENT
1	GYPSUM CLACINING
1	INK MFG/BLENDING
1	NATURAL FERTILIZER PACKAGING/PROCESSING
1	SOIL TREAT VAPOR EXTRACT GASOLINE UNDER
1	TIRE BUFFER
Total **4599**	

Orphan Shutdown & Orphan Reduction Credits to AQMD's Offset Accounts for 2002-2003:
Breakdown by Equipment Category for Top 12 Zip Codes
(pounds PM10 per day)

	Valid NSR	bcat_desc
	1899	ABRASIVE BLASTING
	773	BOILER
	342	TURBINE ENGINE
	249	HEATER/FURNACE
	100	AGGREGATE PRODUCTION
	85	ASPHALT OPERATIONS
	35	CONCRETE PRODUCTION
	29	COPPER OPERATIONS
	25	I C E
	21	SPRAY EQUIPMENT
	4	"TANK, OTHER AQUEOUS SOLUTION"
	4	DEEP FAT FRYER
	3	TAIL GAS INCINERATOR
Total	**3569**	

Attachment 2

Estimated PM2.5 Fraction of
Priority Reserve Credits for 2003-2004

Attachment 2
Estimated PM2.5 Fraction of Priority Reserve PM10 Credits

Original Order (note 3)	Equipment Description (note 1)	2003-04 Valid PM10 NSR (lbs/day) (note 1)	SCC Main Category (note 2)	SCC Sub Category (note 2)	PM2.5 Fraction of PM10 (note 2)	2003-04 Estimated PM2.5 (lbs/day) (note 3)
1	Abrasive Blasting	986	Fabricated Metals	Abrasive Blasting	0.919	906.134
2	Turbine Engine	555	Internal Combustion	Gaseous Fuel	0.998	553.89
3	Spraybooths	304	Coatings, Solvents, Inks & Dyes	Water-Based Coating	0.912	277.248
4	Aggregate Operations	241	Mineral Products	Crushing, Screening, Blasting, Loading and Unloading	0.292	70.372
5	Heaters and Furnaces	158	External Combustion	Gaseous Fuel - Petroleum and Industrial Process Heater Only	0.979	154.682
6	Asphalt Operations	150	Asphalt Paving/Roofing	NA	0.964	144.6
7	Paint Production	130	Chemical Manufacturing	Organic and Inorganic Chemicals	0.989	128.57
8	Boilers	107	External Combustion	Gaseous Fuel - Except Petroleum and Industrial Process Heater	1.000	107
9	Spray Equipment - Open	77	Coatings, Solvents, Inks & Dyes	Water-Based Coating	0.912	70.224
10	Rubber Production	68	Chemical Manufacturing	Organic and Inorganic Chemicals	0.989	67.252
11	Tar Pot	45	Asphalt Paving/Roofing	NA	0.964	43.38
12	Tanks Plating and Surface Prep	41	Electroplating	Zinc and Copper	0.964	39.524
13	ICE	36	Internal Combustion	Gaseous Fuel	0.998	35.928
14	Flour and Feed Production	33	Food and Agriculture	Grain Milling, Drying	0.741	24.453
15	Storage Silos and Tanks	27	Food and Agriculture	Grain Elevators	0.034	0.918
16	Solder Leveling Soldering Machine	25	Fabricated Metals	Arc Welding, Oxy Fuel, copper, Zinc, Bath	0.964	24.1
17	Concrete Batch Equipment	24	Mineral Process Loss	Loading and Unloading Bulk Materials	0.292	7.008
18	Ovens	22	External Combustion	Gaseous Fuel - Except Petroleum and Industrial Process Heater	1.000	22
19	Clay Production	17	Mineral Process Loss	Brick, Cement, Fiberglass, Glass MFG.	0.292	4.964
20	Plastic/Resin Size Reduction	11	Mineral Products	Crushing, Screening, Blasting, Loading and Unloading	0.292	3.212
21	Drop Forge	9	Mineral Process Loss	Grinding, Crushing, Surface Blasting	0.292	2.628
22	Sand Handling Equipment - Foundry	8	Mineral Products	Crushing, Screening, Blasting, Loading and Unloading	0.292	2.336
23	Afterburners and Flares	7	Incinerator, Afterburner, Flares	Gaseous Fuel	1.000	7
24	Circuit Board Etcher, Other	6	Electroplating	Zinc and Copper	0.964	5.784
25	Electrolytic Process	5	Electroplating	Zinc and Copper	0.964	4.82
26	Natural Fertilizer Conveying	4	Mineral Products	Crushing, Screening, Blasting, Loading and Unloading	0.292	1.168

Attachment 2
Estimated PM2.5 Fraction of Priority Reserve PM10 Credits

Original Order (note 3)	Equipment Description (note 1)	2003-04 Valid PM10 NSR (lbs/day) (note 1)	SCC Main Category (note 2)	SCC Sub Category (note 2)	PM2.5 Fraction of PM10 (note 2)	2003-04 Estimated PM2.5 (lbs/day) (note 3)
27	Textile Processing	3	Fugitive Emissions-Organic and Inorganic	Organic and Inorganic Chemicals	0.964	2.892
28	siol Treat Vapor Extract Gasoline Under	3	Incinerator, Afterburner, Flares	Liquid Fuel	0.991	2.973
29	Printing Press	3	Mineral Products	Crushing, Screening, Blasting, Loading and Unloading	0.292	0.876
30	Petroleum Coke Conveying	3	Mineral Products	Crushing, Screening, Blasting, Loading and Unloading	0.292	0.876
31	Deep Fat Fryer	3	External Combustion	Gaseous Fuel - Except Petroleum and Industrial Process Heater	1.000	3
32	Cleaning, Miscellaneous Solvent wipe	3	Chemical Manufacturing	Organic and Inorganic Chemicals	0.989	2.967
33	Activated Carbon Adsorber Drum Vent S. S.	3	Chemical Manufacturing	Organic and Inorganic Chemicals	0.989	2.967
34	Softening and Pre-expansion System	2	Chemical Manufacturing	Organic and Inorganic Chemicals	0.989	1.978
35	Alfalfa Conveying	2	Mineral Products	Crushing, Screening, Blasting, Loading and Unloading	0.292	0.584
36	Synthetic Fertilizer Production	1	Chemical Manufacturing	Organic and Inorganic Chemicals	0.989	0.989
37	Misc Materials Size Classification	1	Mineral Products	Crushing, Screening, Blasting, Loading and Unloading	0.292	0.292
38	Green Waste Screening	1	Mineral Products	Crushing, Screening, Blasting, Loading and Unloading	0.292	0.292
39	Garnetting Paper/Polyester Polyester	1	Chemical Manufacturing	Organic and Inorganic Chemicals	0.989	0.989
40	Ferric Chloride Production	1	Chemical Manufacturing	Organic and Inorganic Chemicals	0.989	0.989
41	Day Tanker Asphaltic	1	Asphalt Paving/Roofing	NA	0.964	0.964
42	Crude Oil/Gas/H2O Seperator >= 30< 400 BPD	1	Fugitive Emissions-Organic and Inorganic	Liquid Fuel Storage/Handling, Loading, Unloading Dispensing	0.964	0.964
43	Chromium Oxide Reaction	1	Chemical Manufacturing	Organic and Inorganic Chemicals	0.989	0.989
44	Carpet Processing system	1	Fugitive Emissions-Organic and Inorganic	Organic and Inorganic Chemicals	0.964	0.964
		3130				2735.74

Sources: 1; Orphan Shutdown & Orphan Reduction Credits to AQMD's Offset Accounts for 2003-2004 (pounds PM10 per day)
2; (AQMD) Staff Recommended Methodology for Calculating PM2.5 Regional and Localized Significance Thresholds, Appendix A. Oct 6, 2006
3: Calculations performed by Energy Commission Staff.

Average PM2.5 Fraction of PM10 **0.874**

BIOLOGICAL RESOURCES

John Mathias

SUMMARY OF CONCLUSIONS

The Sun Valley Energy Project (SVEP) is located within areas covered by the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) and the Habitat Conservation Plan for Stephens' Kangaroo Rat in Western Riverside County, California (SKRHCP). These two habitat conservation plans provide guidance on avoiding and mitigating impacts to biological resources. Compliance with the terms and conditions of the habitat conservation plans and with the terms and conditions of other laws, ordinances, regulations, and standards (LORS) discussed in the staff analysis will be necessary to mitigate impacts to biological resources from the SVEP to less than significant levels.

INTRODUCTION

This section of the Preliminary Staff Assessment (PSA) provides the California Energy Commission (Energy Commission) staff's preliminary analysis of potential impacts to biological resources from the construction and operation of the Sun Valley Energy Project. Information provided in this document addresses potential impacts to state and federally listed species, species of special concern, and areas of critical biological concern. This analysis also describes the biological resources at the project site and at the locations of ancillary facilities. This document explains the need for mitigation, the adequacy of mitigation proposed by the applicant, and where necessary, specifies additional mitigation measures required to reduce identified impacts to less than significant levels. It also describes measures necessary for compliance with applicable LORS, and recommends Conditions of Certification.

This analysis is based, in part, upon information provided in the Application for Certification (AFC) for the SVEP (VSE 2005b), responses to staff data requests (CH2MHill 2006a), site visits conducted on February 27, 2006 and April 25, 2006, and discussions with various agency and applicant representatives.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

FEDERAL	
Clean Water Act (CWA) of 1977	Title 33, United States Code, Sections 1251-1376, and Code of Federal Regulations, part 30, Section 330.5(a)(26), prohibit the discharge of dredged or fill material into the waters of the United States without a permit. The administering agency is the U.S. Army Corps of Engineers (USACE). Under the CWA Section 404, certain activities resulting in minimal impacts qualify for nationwide permits.

Endangered Species Act (ESA) of 1973	Title 16, United States Code, Section 1531 et seq., and Title 50, Code of Federal Regulations, part 17.1 et seq., designate and provide for the protection of threatened and endangered plant and animal species, and their critical habitat. The administering agency is the U.S. Fish and Wildlife Service (USFWS).
Migratory Bird Treaty Act	Title 16, United States Code, Sections 703 through 712, prohibit the take of migratory birds, including nests with viable eggs. The administering agency is the USFWS.

STATE	The administering agency for the following state LORS is the California Department of Fish and Game (CDFG), except for the CWA Section 401 certification, which is administered by the Regional Water Quality Control Board.
California Endangered Species Act (CESA) of 1984	Fish and Game Code Sections 2050 through 2098 protect California's rare, threatened, and endangered species.
California Code of Regulations	California Code of Regulations Title 14, Division 1, Subdivision 3, Chapter 3, Sections 670.2 and 670.5 list plants and animals of California that are designated as rare, threatened, or endangered.
Fully Protected Species	Fish and Game Code Sections 3511, 4700, 5050, and 5515 prohibit the take of animals that are classified as fully protected in California.
Nest or Eggs – Take, Possess, or Destroy	Fish and Game Code Section 3503 protects California's birds by making it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird.
Birds of Prey – Take, Possess, or Destroy	Fish and Game Code Section 3503.5 specifically protects California's birds of prey in the orders Falconiformes and Strigiformes by making it unlawful to take, possess, or destroy any such birds of prey or to take, possess, or destroy the nest or eggs of any such bird.
Migratory Birds – Take or Possession	Fish and Game Code Section 3513 protects California's migratory non-game birds by making it unlawful to take or possess any migratory non-game bird as designated in the Migratory Bird Treaty Act or any part of such migratory non-game bird.
Significant Natural Areas	Fish and Game Code Sections 1930 et seq. designate certain areas in California such as refuges, natural sloughs, riparian areas and vernal pools as significant wildlife habitat.
Native Plant Protection Act of 1977	Fish and Game Code Sections 1900 et seq. designate rare, threatened, and endangered plants in the state of California.

Streambed Alteration Agreement	Fish and Game Code Sections 1600 et seq. regulate activities that may divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake in California designated by the CDFG in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit.
Regional Water Quality Control Board (RWQCB)	By federal law every applicant for a federal permit or license for an activity which may result in a discharge into a California water body, including wetlands, must request state certification that the proposed activity will not violate state and federal water quality standards. In this case, the project owner would obtain a CWA Section 401 certification from the Santa Ana Regional Water Quality Control Board (RWQCB).

LOCAL	
Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP)	The Western Riverside County MSHCP is an element of the Riverside County Integrated Project. The MSHCP is designed to conserve open space, nature preserves, and wildlife areas for over 150 species in western Riverside County. The reserve planning area considers: (1) existing public and quasi-public lands totaling approximately 347,000 acres and (2) criteria areas totaling approximately 153,000 acres that are brought into the reserve area as important corridors and linkages for the reserve area. Criteria areas are identified by groups of block-shaped areas with common conservation goals. The MSHCP enables Riverside County to efficiently plan for future land development while protecting the natural environment. The SVEP site falls within the planning area covered by the MSHCP.
Habitat Conservation Plan for Stephens' Kangaroo Rat in Western Riverside County, California (SKRHCP)	The SKRHCP is a 30-year plan approved in 1996 that is designed to acquire and permanently set aside, manage, conserve, restore, and enhance Stephens' kangaroo rat habitat and to protect the species. The SKRHCP establishes suitable habitat areas where incidental take is permitted through a fee process and core reserve areas in occupied habitat where individual permits are required. The SKRHCP establishes a regional mechanism in western Riverside County through which otherwise lawful activities resulting in the incidental take of Stephens' kangaroo rat meet ESA and CESA requirements without the need to secure individual permits and agreements from the USFWS and the CDFG. All of the SVEP features are located within the SKRHCP fee area.

Riverside County Ordinance No. 663.10, Stephens' Kangaroo Rat Mitigation Fee Ordinance	The ordinance establishes a Plan Fee Assessment Area and sets mitigation fees for development permits in areas covered by the SKRHCP. Prior to issuance of a grading permit, the SVEP shall comply with the provisions of this ordinance, which generally requires the payment of the appropriate fee set forth in the ordinance. The fee amount may vary depending on the type of development application submitted and the applicability of any fee reduction or exemption provisions contained in the ordinance. However, generally all applicants who cannot satisfy mitigation through onsite measures shall pay a fee of $500.00 per gross acre for the parcels proposed for development.
Riverside County Comprehensive General Plan – Environmental Hazards and Resources Element	This Plan contains general policies regarding the protection and preservation of habitat and sensitive plant and wildlife species. Some of the more relevant elements of those policies include: • Detailed biological reports, including inventories, impact assessment and mitigation shall be prepared and submitted; • Disruption of sensitive vegetation shall be kept to a minimum, and adequate measures to protect vegetative species shall be taken; • Where possible, landscaping shall be accomplished through the use of vegetation native to the project site; • Adequate provision shall be made for the retention of existing trees and other flora; and • Where necessary, immediate planting shall be planned and implemented.
Riverside County Ordinance 655, Light Pollution	This ordinance restricts the permitted use of certain light fixtures emitting light into the night sky. Although the intent is to reduce detrimental effects on astronomical observation and research, this ordinance would provide guidance that is relevant to the reduction of light pollution for wildlife (e.g., use of low pressure sodium lamps and shielding).
Riverside County Ordinance No. 810.2, Establishing the Western Riverside County Multiple Species Habitat Conservation Plan Mitigation Fee	The ordinance establishes policies, regulations, and a fee to fund the acquisition of open space and preservation of wildlife habitat necessary to mitigate the direct and cumulative environmental effects generated by new development projects described and defined in this ordinance. Fees are established for projects in residential, commercial, and industrial areas that fall within the fee area boundaries. The fee amount shall be calculated on the basis of the current rates for industrial projects.

SETTING

REGIONAL AND LOCAL

The proposed project site and linear facility routes are located in Perris Valley, in western Riverside County, southeast of Romoland. The Perris Valley has a Mediterranean climate influenced by the Pacific Ocean and is characterized by hot, dry summers and mild, wet winters. Temperatures average in the mid to upper 60s during the winter months and from the high 80s to mid 90s during the summer months. Average precipitation is 12 inches per year, most of which falls between November and March. Winds are from the west and northwest more than half the time from April through September. From October through March winds are more variable and are from the north to the east-southeast at least one-third of the time, from the west and northwest for approximately one-third of the time, and variable throughout the remainder (VSE 2005b, CEC 2003a, Calpine 2001a).

Prior to development, the Perris Valley likely supported native grassland (largely replaced by non-native annual grasslands), riparian scrub, meadow, wetland and species typical of coastal sage scrub vegetation. Vegetation mapping completed for the MSHCP indicates that this area is highly disturbed; fragments of native vegetation remain only in the foothill and mountainous regions (VSE 2005b, CEC 2003a, Calpine 2001a).

Existing Vegetation and Wildlife

The applicant conducted reconnaissance level biological surveys of the project site and associated linear features on September 8, 2005, and characterized and mapped habitats within one mile of the project site. Burrowing owl surveys were completed on March 30, 2006, spring botanical surveys on May 17, 2006, and winter bird and general wildlife surveys on March 24, 2006. Special status species were not observed during the field surveys (CH2MHill 2006e; CH2MHill 2006f).

A large proportion of the land in the project vicinity, including the project site, is agricultural land; however, population growth in the area is leading to rapid development of agricultural land. Other habitat types in the vicinity include coastal scrub, ruderal, and urban habitats (VSE 2005b).

Special Status Species

Agriculture and urban development have highly modified the area around the project site, but a variety of special-status plant and animal species are known to occur in the area presently or to have occurred in the area historically. **Biological Resources Table 1** provides a list of special-status species that are either known to currently occur or to have historically occurred in the project vicinity. The majority of the species listed in **Biological Resources Table 1** are unlikely to be impacted by the SVEP due to lack of suitable habitat at the project site. **Biological Resources Table 2** indicates the special status species with California Natural Diversity Database (CNDDB) records within two miles of the project site. Staff provides an analysis of potential impacts to all species listed in **Biological Resources Table 2** and other special-status species that

may be impacted by the project. No further analysis is provided for species that are not likely to be impacted.

BIOLOGICAL RESOURCES Table 1
Special-Status Species Reported or Suspected to Occur in the Vicinity of SVEP

Scientific name	Common name	Status
Plants		
Abronia villosa var. aurita	Chaparral sand-verbena	CNPS 1B
Allium munzii	Munz's onion	FE, CT, CNPS 1B
Ambrosia pumila	San Diego ambrosia	FE, CNPS 1B
Atriplex coronata var. notatior	San Jacinto Valley crownscale	FE, CNPS 1B
Atriplex serenana var. davidsoni	Davidson's saltscale	CNPS 1B
Atriplex parishii	Parish's brittlescale	CNPS 1B
Brodiaea filifolia	thread-leaved brodiaea	FT, CE, CNPS 1B
Caulanthus simulans	Payson's jewelflower	CNPS 4
Centromadia pungens spp. laevis	smooth tarplant	CNPS 1B
Chorizanthe parryi var. parryi	Parry's spineflower	CNPS 3
Chorizanthe polygonoides var. longispina	long-spined spineflower	CNPS 1B
Convolvulus simulans	small-flowered morning-glory	CNPS 4
Dodecahema leptoceras	slender-horned spineflower	FE, CE, CNPS 1B
Erodium macrophyllum	round-leaved filaree	CNPS 2
Eryngium aristulatum var. parishii	San Diego button-celery	CNPS 1B
Fritillaria biflora var. biflora	chocolate lily	MSHCP
Galium angustifolium ssp. gracillimum	slender bedstraw	CNPS 4
Harpagonella palmeri ssp. palmeri	Palmer's grapplinghook	CNPS 2
Hordeum intercedens	vernal barley	CNPS 3
Limnanthes gracilis ssp. parishii	Parish's meadowfoam	CE, CNPS 1B
Microseris douglasii ssp. platycarpha	Small-flowered microseris	CNPS 4
Myosurus minimus ssp. apus	little mousetail	CNPS 3
Navarretia fossalis	spreading navarretia	FT, CNPS 1B
Opuntia parryi var. serpentina	snake cholla	MSHCP, CNPS 1B
Orcuttia californica	California Orcutt grass	FE, CE, CNPS 1B
Insects and Crustacea		
Branchinecta lynchi	Vernal pool fairy shrimp	FT
Euphydryas editha quino	Quino checkerspot butterfly`	FE
Streptocephalus woottoni	Riverside fairy shrimp	FE
Reptiles and Amphibians		
Aspidoscelis hyperythra	Orange-throated whiptail	CSC
Aspidoscelis tigris stejnegeri	Coastal western whiptail	NA
Bufo californicus	Arroyo toad	FE
Clemmys marmorata pallida	Southwestern pond turtle	CSC
Charina trivirgata roseofusca	Coastal rosy boa	MSHCP
Coleonyx variegates abbotti	San Diego banded gecko	MSHCP
Crotalus ruber ruber	Red-diamond rattlesnake	CSC
Phrynosoma coronatum	Coast horn lizard	CSC
Rana aurora draytoni	California red-legged frog	FT
Salvadora hexalepis virgultea	Coast patch-nosed snake	CSC
Sceloporus orcutti orcutii	Granite spiny lizard	MSHCP
Spea hammondii	Western spadefoot	CSC
Xantusia henshawi	Granite night lizard	MSHCP

Scientific name	Common name	Status
Birds		
Accipiter cooperii	Cooper's hawk	CSC
Accipiter striatus velox	Sharp-shinned hawk	CSC
Agelaius tricolor	Tricolor blackbird	CSC
Aimophila ruficeps canescens	Rufus-crowned sparrow	CSC
Ammodramus savannarum perpallidus	Grasshopper sparrow	MSHCP
Amphispiza belli belli	Bell's sage sparrow	CSC
Aquila chrysaetos	Golden eagle	CSC, FP
Buteo regalis	Ferruginous hawk	CSC
Buteo swainsoni	Swainson's hawk	CT
Campylorhynchus brunneicapillus cousei	Cactus wren	CSC
Cathartes aura meridionalis	Turkey vulture	MSHCP
Charadrius montanus	Mountain plover	FT
Circus cyaneus hudsonius	Northern harrier	CSC
Dendroica niger borealis	Yellow warbler	CSC
Elanus leucurus majusculus	White-tailed kite	CR, FP
Empidonax traillii extimus	Southwestern willow flycatcher	FE, CE
Eremophila alpestris actia	California horned lark	CSC
Falco mexicanus	Prairie falcon	CSC
Falco columbarius	Merlin	CSC
Haliaeetus leucocephalus	Bald eagle	FT, CE
Lanius ludovicianus gambeli	Loggerhead shrike	CSC
Nycticorax nycticorax	Black-crowned night heron	MSHCP
Plegadis chihi	White-faced ibis	CSC
Polioptila californica californica	Coastal California gnatcatcher	FT
Speotyto cunicularia hypugaea	Burrowing owl	CSC
Sterna antillarum browni	California least tern	FE, CE
Vireo bellii pusillus	Least Bell's vireo	FE, CE
Wilsonia pusilla pileolata	Wilson's warbler	MSHCP
Mammals		
Canis latrans clepticus	coyote	MSHCP
Chaetodipus californicus femoralis	Dulzura pocket mouse	CSC
Chaetodipus fallax fallax	San Diego pocket mouse	CSC
Dipodomys stephensi	Stephens' kangaroo rat	FE, CT
Dipodomys merriami parvus	San Bernardino kangaroo rat	FE
Eumops perotis californicus	Western mastiff bat	CSC
Lepus californicus bennettii	San Diego black-tailed jackrabbit	CSC
Onychomys torridus ramona	Southern grasshopper mouse	CSC
Neotoma lepida intermedia	Desert woodrat	MSHCP
Perognathus longimembris brevinasus	Los Angeles pocket mouse	CSC
Puma concolor	Mountain lion	MSHCP
Sylvilagus backmanii cinerascens	Brush rabbit	MSHCP

Status Key

State Status
CE = State listed as Endangered
CT = State listed as Threatened
CSC = California Species of Special Concern
FP = Fully protected species

Regional Status
MSHCP – Identified as a key species in the Western Riverside County Multi-Species Habitat Conservation Plan, but lacks federal- or state-level status.

Federal Status
FE = Federally listed as Endangered
FT = Federally listed as Threatened

California Native Plant Society (CNPS) Status
CNPS 1A = Plants presumed extinct in California
CNPS 1B = Plants rare, threatened, or endangered in California and elsewhere
CNPS 2 = Plants rare, threatened, or endangered in California, but more common elsewhere
CNPS 3 = Plants about which we need more information—a review list
CNPS 4 = Plants of limited distribution—a watch list

Source: (VSE 2005b)

BIOLOGICAL RESOURCES Table 2
CNDDB Species Records within Two Miles of SVEP Site

Scientific Name	Common Name	Status
Crotalus ruber ruber	Red-diamond rattlesnake	CSC
Chaetodipus californicus femoralis	Dulzura pocket mouse	CSC
Speotyto cunicularia hypugaea	Burrowing owl	CSC
Onychomys torridus ramona	Southern grasshopper mouse	CSC
Polioptila californica californica	Coastal California gnatcatcher	FT
Aquila chrysaetos	Golden eagle	CSC, FP
Dipodomys stephensi	Stephens' kangaroo rat	FE, CT
Aspicoscelis hypertherma	Orange-throated whiptail	CSC
Perognathus longimembris brevinasus	Los Angeles pocket mouse	CSC

Status Key

State Status
CT = State listed as Threatened
CSC = California Species of Special Concern
FP = Fully Protected species

Federal Status
FE = Federally listed as Endangered
FT = Federally listed as Threatened

Sources: (CNDDB 2006, VSE 2005b)

Sensitive Habitats

Coastal Scrub

Coastal scrub habitat occurs in the rocky slopes approximately one mile southwest of the project site. This habitat typically consists of low to moderate-sized shrubs with mesophytic leaves, flexible branches, semi-woody branches growing from a woody base, and a shallow root system. Coastal scrub habitat varies from the northern to the southern parts of its range based on moisture levels, coastal influence, and other factors. In the project area, Coastal Scrub habitat generally includes the California buckwheat series and the California sagescrub series (VSE 2005b, CWHRS 2006).

Aquatic Habitat

Various LORS regulate impacts to wetlands, including the federal Clean Water Act. Wetlands subject to Clean Water Act Section 404 are defined as "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (USEPA).

The applicant's spring, 2006 botanical surveys indicated the presence of a "wet area" at the western end of the non-reclaimable wastewater pipeline (CH2MHill 2006f, attachment BIO-3). The "wet area" has vegetation characteristic of wetlands; however, the applicant has stated the project will not impact the feature because the wastewater pipeline will be constructed within the existing roadways and that it will monitor the area during construction to ensure that it will not be impacted (CH2MHill 2006h).

PROJECT SITE

Power Plant Site and Construction Laydown Area

The proposed SVEP site is located on two parcels that were in agricultural use. The two parcels combined constitute a total of 22.59 acres (one parcel is 17.75 acres and one is

4.84 acres) (RCIP 2006). The lay-down area is located within the two parcels on which the SVEP will be developed. The Burlington Northern Santa Fe railroad tracks, McLaughlin Road, and Matthews Road border the site's northern boundary, and Menifee Road is located a few hundred feet east of the site. Rouse Road is to the south of the site and Junipero Road lies adjacent to the SVEP to the west. Both Rouse Road and Junipero Road will be improved to provide permanent site access after completion of the SVEP. Wheat fields are located immediately west, south, and east of the site. A residence is located immediately southeast of the site. The Southern California Edison (SCE) Valley Substation and a wood recycling facility are located across Matthews Road to the north of the site. Housing development is taking place directly across Menifee Road east of the project site.

Linear Facilities

New linear facilities that are part of the SVEP include a natural gas supply pipeline, a 115-kV transmission line for interconnection with the Southern California Edison Valley Substation, and a non-reclaimable wastewater pipeline. Additionally, a recycled water supply pipeline and a potable water supply pipeline are part of the project, and will tie into supply lines in the utility easement adjacent to and directly north of the project site.

The natural gas supply pipeline will run 750 feet from the project site to the southeast along Matthews Road. The pipeline will be constructed within the existing dirt road and may require the clearing of ruderal roadside vegetation.

Similarly, the 0.75-mile long non-reclaimable wastewater pipeline would be built along Matthews and McLaughlin roads west of the project site.

The 115-kV transmission line, depending on final route selection by SCE, could be as long as 950 feet north of the SVEP site to the SCE Valley substation (See the **TRANSMISSION SYSTEM ENGINEERING** and **ALTERNATIVES** sections of the Preliminary Staff Assessment for more detailed potential route descriptions). Up to four offsite transmission towers would be required for the line. Construction of the offsite transmission towers would cause permanent disturbance and temporary disturbance of ruderal land.

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

The California Environmental Quality Act (CEQA) Guidelines define direct impacts as those impacts that result from the project and occur at the same time and place. Indirect impacts are caused by the project, but can occur later in time or farther removed in distance, but are still reasonably foreseeable. The potential impacts discussed below are those most likely to be associated with construction and operation of the project.

Significance of impacts is generally determined by compliance with applicable LORS; however, because of the diversity of biological impacts, guidelines adopted by resource agencies may also be used.

Substantial adverse impacts to special status species (including federally or state listed species, fully protected species, or California species of special concern) either directly or through habitat modifications can be considered significant under the CEQA. In addition, impacts to wetlands and other sensitive habitats, conflict with habitat management plans, or interference with the movements of native or migratory species can be considered significant.

DIRECT/INDIRECT IMPACTS AND MITIGATION

Effects on Special-status Species

Power Plant Site

The SVEP site will occupy 22.59 acres of currently agricultural habitat within the range of several special-status species. The following special-status species have been recorded within two miles of the project site and could be impacted by the project: Stephens' kangaroo rat, Dulzura pocket mouse, Los Angeles pocket mouse, red-diamond rattlesnake, burrowing owl, Southern grasshopper mouse, coastal California gnatcatcher, golden eagle, and orange-throated whiptail. Staff is primarily concerned with potential impacts to the federally endangered and state threatened Stephens' kangaroo rat, federally threatened California coastal gnatcatcher, and the burrowing owl, a California species of special concern. Potential impacts to these three species are discussed here in greater detail.

Stephens' Kangaroo Rat

The site is located within the historic range of the Stephens' kangaroo rat (SKR), a federally endangered and California threatened species, and SKR may occupy portions of the proposed project site. The CNDDB indicates the presence of SKR in several locations within two miles of the SVEP site. Additionally, in 2006, a dead kangaroo rat, suspected to be an SKR, was discovered at the Inland Empire Energy Center site located less than one mile from the SVEP site (Tetra Tech 2006a). Reconnaissance level surveys have been conducted; however, focused SKR surveys have not been conducted at the project site. There is the potential for individuals of this species to be impacted during project construction and operation.

Because the proposed project site occurs within the plan area boundary of the approved Habitat Conservation Plan for the Stephens' Kangaroo Rat in Western Riverside County, California (March 1996) (SKRHCP), compliance with this plan and its associated implementation agreement will be required prior to any ground-disturbing activities, including vegetation removal. Riverside County Ordinance No. 663.10 (Stephens' Kangaroo Rat Mitigation Fee Ordinance) established a mitigation fee of $500.00 per gross acre for parcels proposed for development within the historic range of the SKR. The project site is within the fee area defined by the ordinance.

The applicant has stated that it will pay the mitigation fees specified in Riverside County Ordinance No. 663.10 and comply with the SKRHCP to mitigate impacts to SKR (VSE 2005b; CH2MHill 2006d, p. 12). In addition, the applicant has proposed the following additional mitigation measures to minimize and mitigate potential impacts to SKR: implementation of worker environmental awareness training, hiring of a designated

biologist and on-site monitoring by qualified biologists, preparation of a Biological Resources Mitigation, Implementation, and Monitoring Plan (BRMIMP), and restoration of temporarily disturbed areas to preconstruction conditions (VSE 2005b, CH2MHill 2006a). Staff agrees with these mitigation measures and has incorporated them into Conditions of Certification **BIO-1, BIO-2, BIO-3, BIO-4** (Designated Biologist and Biological Monitor Selection, Duties, Qualifications, and Authority), **BIO-5** (worker environmental awareness program), **BIO-6** (BRMIMP), and **BIO-8** (Habitat Conservation Plans). In addition, staff proposes Condition of Certification **BIO-11** to further avoid and mitigate potential impacts to SKR. **BIO-11** (Avoidance of Harassment and Harm) includes measures to prevent SKR and other wildlife from becoming entrapped in holes or trenches during construction. Staff believes that implementation of the above measures will adequately mitigate any potential impacts to the Stephens' Kangaroo Rat.

Burrowing Owl

The SVEP site is within the range of the burrowing owl, a California species of special concern. The MSHCP requires that protocol level burrowing owl surveys be conducted at the SVEP site. The applicant conducted the required burrowing owl surveys on March 30, 2006, and the surveys identified an unoccupied burrowing owl burrow on the northern boundary of the site. Project construction could result in direct impacts to burrowing owls as well as indirect impacts.

The applicant has stated that additional focused surveys as well as pre-construction surveys will be conducted prior to ground-disturbing activities at the SVEP site. The applicant has also stated that if active burrowing owl burrows are found, mitigation measures may include passive relocation, burrow exclusion, and/or restriction of construction activities near the burrow. Additional measures that will mitigate impacts to burrowing owls include implementation of worker environmental awareness training, hiring of a designated biologist and on-site monitoring by qualified biologists, preparation of a Biological Resources Mitigation, Implementation, and Monitoring Plan (BRMIMP), and restoration of temporarily disturbed areas to preconstruction conditions. Staff agrees with these mitigation measures and has incorporated them into Conditions of Certification **BIO-1, BIO-2, BIO-3, BIO-4** (Designated Biologist and Biological Monitor Selection, Duties, Qualifications, and Authority), **BIO-5** (worker environmental awareness program), **BIO-6** (BRMIMP), and **BIO-8** (Habitat Conservation Plans).

California Coastal Gnatcatcher

The California Coastal Gnatcatcher is a federally threatened species that inhabits coastal scrub habitat throughout the region. The species is known to occupy the area of coastal scrub habitat located approximately 0.75 miles southwest of the SVEP site (CNDDB 2006). The SVEP will not directly impact any coastal scrub habitat. Therefore, impacts to California Coastal Gnatcatcher are not expected and no mitigation is proposed.

Other Wildlife and Wildlife Habitat Potential Impacts

In addition to the species discussed above, the SVEP may impact other wildlife species, including the following California species of special concern: Dulzura pocket mouse, Los Angeles pocket mouse, red-diamond rattlesnake, Southern grasshopper mouse, golden eagle, and orange-throated whiptail. The golden eagle is also a fully protected species.

California species of special concern status includes animals not listed under the federal Endangered Species Act or the California Endangered Species Act, but which nonetheless 1) are declining at a rate that could result in listing, or 2) historically occurred in low numbers and known threats to their persistence currently exist (CDFG 2007a). Direct impacts to the species listed above could include mortality of wildlife occupying the site as well as habitat loss and loss of foraging habitat.

Impacts to red-diamond rattlesnake, Dulzura pocket mouse, Southern grasshopper mouse, and orange-throated whiptail are possible but not likely due to the lack of suitable habitat for these species. There is the potential for impacts to Los Angeles pocket mouse at the SVEP site. In addition, impacts to golden eagles are expected through loss of foraging habitat.

The Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) was enacted for the conservation of a wide variety of species and their associated habitats in Western Riverside County. To implement the goals and objectives of the MSHCP, Riverside County has adopted Ordinance No. 810.2 establishing mitigations fees for development in unincorporated areas of western Riverside County. The fees collected under the ordinance are used to finance the acquisition and improvement of lands necessary to meet the goals and objectives of the MSHCP. The ordinance set the fee for industrial development at $5,620 per acre based on the size of the lot proposed for development. The two lots on which the SVEP will be built comprise a total of 22.59 acres. Therefore, staff has determined that a payment of $126,955.80 will be required by Riverside County in order to comply with Riverside County Ordinance No. 810.2.

Staff believes that the contributions to habitat acquisition and improvement resulting from compliance with Riverside County Ordinance No. 810.2, in addition to mitigation measures discussed earlier for Stephens' kangaroo rat and burrowing owl, will mitigate impacts to the California species of concern and other wildlife and wildlife habitat discussed above to less than significant levels. Condition of Certification **BIO-12** requires that the applicant comply with Riverside County Ordinances 663.10 and 810.2, including the payment of fees associated with the ordinances.

Linear Facilities

Construction of the transmission line, non-reclaimable wastewater line, and the natural gas line will temporarily impact 3.4 acres. Construction of the offsite transmission towers will permanently impact ruderal land. Staff does not believe that construction of linear facilities will require payment of mitigation fees under the MSHCP or the SKRHCP.

Vernal Pool Crustaceans

As discussed earlier, the applicant's spring 2006 botanical surveys identified a "wet area" near the western end of the wastewater pipeline route (CH2MHill 2006f). The applicant has stated that the "wet area" will not be impacted by the project in any way. It is unknown whether the "wet area" is considered a vernal pool and whether it supports vernal pool crustaceans such as the federally listed vernal pool fairy shrimp and Riverside fairy shrimp. Correspondence with the USFWS indicated that if riparian, riverine, vernal pool, or fairy shrimp habitat occurs on the site and cannot be avoided, a Determination of Biologically Equivalent or Superior Preservation is required under the

MSHCP (USFWS 2006a). Because the applicant has stated that the "wet area" and other wetlands will not be impacted by the project and that biological monitors will be present during construction to ensure that wetlands and seasonal drainages will not be impacted (CH2MHill 2006h), staff believes that impacts to vernal pool crustaceans will not be significant. Condition of Certification **BIO-6** (BRMIMP) requires that mitigation and monitoring measures proposed and agreed to by the project owner be incorporated into the BRMIMP and that all measures in the BRMIMP be implemented by the project owner. In addition, Condition of Certification **BIO-10** requires the avoidance of wetlands and sensitive resources.

SKR, Burrowing Owl, and General Wildlife Impacts

All linear facilities will be constructed along roadsides or in ruderal areas. Surveys conducted by the applicant identified numerous small and medium-sized mammal burrows along the proposed linear facilities routes. Construction of the linear facilities could directly impact wildlife along the route; however, implementation of mitigation measures discussed earlier for wildlife impacts on the power plant site would similarly mitigate potential impacts along the linear facilities. Conditions of Certification **BIO-1, BIO-2, BIO-3, BIO-4** (Designated Biologist and Biological Monitor Selection, Duties, Qualifications, and Authority), **BIO-5** (worker environmental awareness program), **BIO-6** (BRMIMP), **BIO-8,** (Habitat Conservation Plans) and **BIO-11** (Avoidance of Harassment and Harm) incorporate these mitigation measures. In addition, the applicant has stated that all areas subject to temporary disturbance will be restored to preconstruction conditions (VSE 2005b, p. 8.2-21). Restoration of temporarily disturbed land to preconstruction conditions will further mitigate wildlife impacts along the linear facilities. Condition of certification **BIO-10** (Impact Avoidance Mitigation Features) requires the restoration of temporarily disturbed areas to pre-project conditions, among other things.

Impacts to Seasonal Drainages

Several seasonal drainages have been reported on either side of Matthews and McLaughlin roads. Construction of the wastewater pipeline and the natural gas line may impact the ephemeral drainages.

Staff expressed concerns to the applicant regarding potential impacts to seasonal drainages located along the wastewater pipeline route. The applicant has indicated that seasonal drainages will not be impacted because linear facilities will be constructed within existing roadbeds. On November 14, 2006, applicant staff met with Energy Commission staff to discuss potential impacts to seasonal drainages. As a result of the meeting, the applicant contacted California Department of Fish and Game, U.S. Army Corps of Engineers, and Santa Ana Regional Water Quality Control Board (SARWQCB) personnel to determine whether permits would be needed from any of the agencies for potential impacts to seasonal drainage features (CH2MHill 2006h).

In an email dated December 13, 2006, SARWQCB Environmental Scientist Adam Fischer wrote that "the project will not require additional waste discharge requirements to authorize discharges of fill" and that it "appears to be subject to the State Board's general construction permit" (SARWQCB 2006a). Additionally, in an email dated December 26, 2006, Jeff Brandt of CDFG stated that the project will not require a Streambed Alteration Agreement from CDFG (CDFG 2006a).

It is possible that the seasonal drainages are considered “waters of the U.S.,” and therefore subject to USACE jurisdiction. USACE Nationwide Permit 12 covers utility line construction in waters of the U.S. The applicant has stated that potential impacts to the ephemeral drainages that are covered by Nationwide Permit 12 do not require notification of the USACE. The applicant contacted the USACE for concurrence with the applicant’s position that USACE permitting would not be required for the SVEP; however, as of March 2007, staff is unaware of a response from the USACE.

Staff believes that avoidance measures proposed by the applicant and compliance with terms and conditions of USACE Nationwide Permit 12 will ensure that potential impacts to seasonal drainages are less than significant. Conditions of Certification **BIO-9** (USACE Permit) and **BIO-10** (Impact Avoidance Mitigation Features) require measures that will ensure that seasonal drainages will not be significantly impacted.

OPERATION IMPACTS AND MITIGATION

Potential operation impacts include impacts to birds due collision with and/or electrocution by the transmission line and disturbance to wildlife due to increased noise and lighting.

Avian Collision and Electrocution

Birds are known to collide with transmission lines and structures, causing mortality to the birds. It is possible that birds could collide with the 600-foot long transmission line that is part of the SVEP project or with the power plant structure. In addition, birds with large wingspans can be electrocuted by transmission lines. The applicant has stated that transmission poles and lines will be constructed according to Avian Power Line Interaction Committee (APLIC) guidelines (VSE 2005b, p. 8.2-20) to minimize the potential for electrocution of birds. Among other things, the APLIC guidelines suggest methods for designing transmission facilities to minimize potential impacts to raptors and other bird species (APLIC 2006). There is also potential for birds to be impacted through collisions with the transmission line; however, staff does not believe such impacts will be significant due to the short length of the transmission line and the lack of large concentrations of birds in the immediate area. Condition of Certification **BIO-10** requires that the applicant follow APLIC guidelines for reducing the risk of avian electrocution from power lines.

Noise and Lighting

Impacts from noise due to operation of the SVEP are not expected to be significant. Although plant operations will create additional noise, the SVEP is located in an area that currently experiences noise from vehicular traffic, industrial and commercial operations, and other sources (Mathias, personal observation). In addition, there is limited special status species breeding habitat within one mile of the project site (VSE 2005b). As discussed in the Noise section of this staff assessment, compliance with Conditions of Certification **NOISE-1** through **NOISE-6** would ensure that noise impacts due to the SVEP are not significant. Due to the existing noise levels in the area, the limited special status species habitat close to the SVEP site, and the measures required by the Conditions of Certification proposed in the Noise section of the staff

assessment, staff believes that SVEP operations noise will not cause significant impacts to biological resources.

Similarly, impacts to biological resources due to lighting are not expected to be significant. The AFC states that lighting at the facility will be restricted to areas required for safety, security, and operation. In addition, exterior lights will be hooded, lights will be directed so as to minimize glare, and non-glare fixtures will be used (VSE 2005b, p. 8.13-18). Existing light levels in the area likely have resulted in wildlife becoming acclimatized to light. Condition of Certification **BIO-10** requires that lighting be installed so as to minimize impacts to wildlife. Condition of Certification **BIO-12** requires the project to comply with Riverside County Ordinance 655, which regulates light pollution. Because of the existing light levels in the area, the lack of special status species habitat near the project site, and the requirements discussed above that minimize potential impacts of lighting, staff does not believe that lighting will have a significant impact on biological resources. Additional information regarding lighting impacts is available in the Visual Resources section of this staff assessment.

Nitrogen Deposition

The mountains of southern California receive some of the highest rates of atmospheric nitrogen deposition in the world (as much as 40 kg N/ha/yr), and high deposition rates extend throughout the Los Angeles Basin into Riverside and San Bernardino Counties. Vehicle emissions are the primary source of nitrogen emissions in California, but power plants and other industrial activities are also significant sources of nitrogen emissions (CARB 2002). The high rates of nitrogen deposition may contribute indirectly to the decline of coastal sage scrub in Riverside and San Bernardino Counties by encouraging the replacement of the native vegetation with invasive grasses that out compete seedlings of native shrubs and forbs (Allen 2002 in CEC 2003a; Allen et al. 1998). In addition to invasion of non-native species, adverse effects of nitrogen deposition include decreased plant function due to leached nutrients (e.g., calcium) from the soil; loss of fine root biomass; decreases in symbiotic mycorrhizal fungi (Egerton-Warburton and Allen 2000); and leaching into surface waters and ground waters, which increases acidification.

An area of coastal sage scrub habitat exists approximately 0.75 mile southwest of the project site. Coastal California gnatcatcher is generally associated with coastal sage scrub habitat, and CNDDB records indicate the presence of coastal California gnatcatcher in this particular area of coastal sage scrub habitat (VSE 2005b, p. 8.2-13; fig. 8.2-2). This area, as well as other areas of coastal sage scrub in the project area, could be impacted by nitrogen deposition resulting from SVEP emissions. Emissions from operation of the SVEP that would contribute to nitrogen deposition include ammonia and nitrogen oxides. Potential nitrogen deposition impacts are most likely to occur in coastal sage scrub habitat within approximately two miles of the SVEP. Staff consulted the USFWS about potential nitrogen deposition concerns, and the USFWS indicated that nitrogen deposition from the SVEP is unlikely to impact listed species (USFWS 2007a; USFWS 2007b).

Mitigation measures for nitrogen oxides emissions include the purchase of Regional Clean Air Incentives Market (RECLAIM) trading credits to offset nitrogen oxide

emissions and employment of emission control technology to minimize nitrogen oxide emissions. The SVEP will be required to utilize technology to minimize nitrogen oxide emissions, and the applicant will be required to offset remaining nitrogen oxide emissions at a 1:1 ratio through the South Coast Air Quality Management District's RECLAIM program. RECLAIM is a programmatic approach to reducing nitrogen oxide emissions from stationary sources in the South Coast Air Basin. Mitigation measures for ammonia emissions include employment of emission control technology to minimize ammonia emissions. The SVEP will incorporate emission control technology to minimize ammonia emissions.

Measures that would further mitigate the impacts of nitrogen deposition include payment of mitigation fees to the Western Riverside County Regional Conservation Authority to be in compliance with the MSHCP. MSHCP fees contribute to habitat management for a wide range of species in western Riverside County, including species such as coastal California gnatcatcher and quino checkerspot butterfly whose habitats may be impacted by nitrogen deposition. Staff believes that employment of air quality mitigation measures, which are discussed in greater detail in the Air Quality section of the PSA, and payment of MSHCP mitigation fees will mitigate the nitrogen deposition impacts to less than significant levels.

CUMULATIVE IMPACTS AND MITIGATION

Cumulative impacts refer to a proposed project's incremental effect viewed over time together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed project (Pub. Resources Code § 21083; Cal. Code Regs., tit. 14, §§ 15064(h), 15065(c), 15130, and 15355).

In addition to the SVEP, numerous other projects are in various stages of planning or construction in the project vicinity, including the Inland Empire Energy Center (IEEC) to the northwest and Menifee Valley Ranch housing development on the east side of Menifee Rd. The area is one of the fastest developing areas in the country.

Due to the rapid growth and large number of new development projects in the area, staff believes that the SVEP may contribute to significant cumulative impacts to biological resources from the loss of wildlife habitat, including the loss of habitat in the historic range of Stephens' kangaroo rat. Direct and indirect impacts to biological resources have been addressed in this staff assessment or, in the case of nitrogen deposition, will be addressed in the Final Staff Assessment. The proposed Conditions of Certification will ensure that all impacts are mitigated to less than significant levels. In addition, the SKRHCP and MSHCP were both implemented to address long-term impacts to wildlife. All future projects in the vicinity will also be required to comply with the SKRHCP and the MSHCP. Because the Conditions of Certification will ensure the SVEP's compliance with each of these plans, and all other projects in the vicinity will be required to comply with the habitat conservation plans and to mitigate impacts to less than significant levels, cumulative impacts to biological resources due to the SVEP will be less than significant.

FACILITY CLOSURE

Sometime in the future, the SVEP will experience either a planned closure, or be unexpectedly (either temporarily or permanently) closed. When facility closure occurs, it must be done in such a way as to protect the environment and public health and safety. A closure plan will be prepared by the project owner prior to any planned closure. To address unanticipated facility closure, an "on-site contingency plan" would be developed by the project owner, and approved by the Energy Commission Compliance Project Manager (CPM). Closure requirements are discussed in more detail in the **GENERAL CONDITIONS** section of this PSA. Facility closure mitigation measures will also be included in BRMIMP prepared by the applicant.

The surrounding area is predominantly agricultural, including the area proposed for the project. At the plant site no sensitive habitats or vegetation dominated by native species will be cleared or disturbed. Linear facilities will not affect sensitive habitat (VSE 2005b, ROC 2006a). Permanent or temporary loss or disturbance of these areas will be fully mitigated to less than significant levels as a condition of project construction. When the plant is closed, restoration to pre-construction conditions would not be necessary.

If the power plant facilities are closed after an anticipated 30-year operational period, the surrounding areas may be more highly industrialized and densely populated. In this case, restoration of any of the project area to natural habitat that existed prior to the current agricultural development would be even less practical.

While structures are being removed and the area is being stabilized during plant closure, all parties involved should follow applicable measures prescribed in Conditions of Certification **BIO-1** through **BIO-7** to address potential impacts to biological resources. The equipment used, traffic, human presence and nature of the disturbance during closure would similar enough that application of the same mitigation measures implemented during construction would be appropriate.

COMPLIANCE WITH LORS

The proposed project is subject to numerous federal, state, and local LORS. Mitigation measures proposed by the applicant and mitigation measures required by the Conditions of Certification address compliance with applicable biological resources-related LORS, including the SKRHCP, the MSHCP, Riverside County ordinances, and measures outlined in the Riverside County advisory conditional use permit (Riverside County, 2007a).

NOTEWORTHY PUBLIC BENEFITS

Noteworthy public benefits with regard to biological resources include payment of fees related to the SKRHCP and the MSHCP. Both of these habitat conservation plans are designed to accomplish long-term acquisition, conservation, and improvement of wildlife habitat. Fees paid by the SVEP will contribute towards habitat acquisition, conservation, and improvement.

RESPONSE TO AGENCY COMMENTS

Angeles National Forest personnel submitted a letter to the South Coast Air Quality Management District expressing concerns regarding the effects of nitrogen emissions from the SVEP (USFS 2007a). Staff contacted the USFWS to discuss potential nitrogen impacts due to the SVEP. USFWS personnel indicated that nitrogen deposition due to the SVEP was not likely to impact listed species (USFWS 2007a, USFWS 2007b). Staff has determined that implementation mitigation measures discussed in this analysis, including the purchase of air quality RECLAIM trading credits and payment of MSHCP mitigation fees reduce the potential impacts to biological resources due to nitrogen deposition to less than significant levels.

CONCLUSIONS

The Conditions of Certification proposed in this preliminary staff analysis are necessary to mitigate impacts to biological resources from the SVEP to less than significant levels. Compliance with the SKRHCP, MSHCP, and other LORS discussed in this staff analysis will ensure impacts to Stephens' kangaroo rat, burrowing owl, coastal California gnatcatcher, other special status species, and wildlife habitat are mitigated to less than significant levels.

PROPOSED CONDITIONS OF CERTIFICATION

Designated Biologist Selection

BIO-1 The project owner shall assign a Designated Biologist to the project. The project owner shall submit the resume of the proposed Designated Biologist, with at least three references and contact information, to the Energy Commission Compliance Project Manager (CPM) for approval.

The Designated Biologist must meet the following minimum qualifications:

1. Bachelor's Degree in biological sciences, zoology, botany, ecology, or a closely related field; and
2. Three years of experience in field biology or current certification of a nationally recognized biological society, such as The Ecological Society of America or The Wildlife Society; and
3. At least one year of field experience with biological resources found in or near the project area.

In lieu of the above requirements, the resume shall demonstrate to the satisfaction of the CPM, that the proposed Designated Biologist or alternate has the appropriate training and background to effectively implement the conditions of certification.

Verification: The project owner shall submit the specified information at least 90 days prior to the start of any site (or related facilities) mobilization. No site or related facility

activities shall commence until an approved Designated Biologist is available to be on site.

If a Designated Biologist needs to be replaced, the specified information of the proposed replacement must be submitted to the CPM at least ten working days prior to the termination or release of the preceding Designated Biologist. In an emergency, the project owner shall immediately notify the CPM to discuss the qualifications and approval of a short-term replacement while a permanent Designated Biologist is proposed to the CPM for consideration.

Designated Biologist Duties

BIO-2 The project owner shall ensure that the Designated Biologist performs the following during any site (or related facilities) mobilization, ground disturbance, grading, construction, operation, and closure activities. The Designated Biologist may be assisted by the approved Biological Monitor(s), but remains the contact for the project owner and CPM.

1. Advise the project owner's Construction and Operation Managers on the implementation of the biological resources Conditions of Certification;
2. Consult on the preparation of the Biological Resources Mitigation Implementation and Monitoring Plan, to be submitted by the project owner;
3. Be available to supervise, conduct and coordinate mitigation, monitoring, and other biological resources compliance efforts, particularly in areas requiring avoidance or containing sensitive biological resources, such as wetlands and special status species or their habitat;
4. Clearly mark sensitive biological resource areas and inspect these areas at appropriate intervals for compliance with regulatory terms and conditions;
5. Inspect active construction areas where animals may have become trapped prior to construction commencing each day. At the end of the day, inspect for the installation of structures that prevent entrapment or allow escape during periods of construction inactivity. Periodically inspect areas with high vehicle activity (i.e. parking lots) for animals in harms way;
6. Notify the project owner and the CPM of any non-compliance with any biological resources Condition of Certification;
7. Respond directly to inquiries of the CPM regarding biological resource issues;
8. Maintain written records of the tasks specified above and those included in the BRMIMP. Summaries of these records shall be submitted in the Monthly Compliance Report and the Annual Report; and
9. Train the Biological Monitors as appropriate, and ensure their familiarity with the BRMIMP, Worker Environmental Awareness Program (WEAP) training and all permits.

Verification: The Designated Biologist shall submit in the Monthly Compliance Report to the CPM copies of all written reports and summaries that document biological

resources activities. If actions may affect biological resources during operation a Designated Biologist shall be available for monitoring and reporting. During project operation, the Designated Biologist shall submit record summaries in the Annual Compliance Report unless their duties are ceased as approved by the CPM.

Biological Monitor Qualifications

BIO-3 The project owner's CPM approved Designated Biologist shall submit the resume, at least three references and contact information, of the proposed Biological Monitors to the CPM for approval. The resume shall demonstrate to the satisfaction of the CPM, the appropriate education and experience to accomplish the assigned biological resource tasks.

Biological Monitor(s) training by the Designated Biologist shall include familiarity with the Conditions of Certification and the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP), WEAP and all permits.

Verification: The project owner shall submit the specified information to the CPM for approval at least 30 days prior to the start of any site (or related facilities) mobilization. The Designated Biologist shall submit a written statement to the CPM confirming that individual Biological Monitor(s) have been trained including the date when training was completed. If additional biological monitors are needed during construction the specified information shall be submitted to the CPM for approval 10 days prior to their first day of monitoring activities.

Designated Biologist and Biological Monitor Authority

BIO-4 The project owner's Construction/Operation Manager shall act on the advice of the Designated Biologist and Biological Monitor(s) to ensure conformance with the biological resources Conditions of Certification.

If required by the Designated Biologist and Biological Monitor(s) the project owner's Construction/ Operation Manager shall halt all site mobilization, ground disturbance, grading, construction, and operation activities in areas specified by the Designated Biologist.

The Designated Biologist shall:

1. Require a halt to all activities in any area when determined that there would be an unauthorized adverse impact to biological resources if the activities continued;
2. Inform the project owner and the Construction/Operation Manager when to resume activities; and
3. Notify the CPM if there is a halt of any activities, and advise the CPM of any corrective actions that have been taken, or will be instituted, as a result of the work stoppage.

If the Designated Biologist is unavailable for direct consultation, the Biological Monitor shall act on behalf of the Designated Biologist.

Verification: The project owner shall ensure that the Designated Biologist or Biological Monitor notifies the CPM immediately (and no later than the following morning of the incident, or Monday morning in the case of a weekend) of any non-compliance or a halt of any site mobilization, ground disturbance, grading, construction, and operation activities. The project owner shall notify the CPM of the circumstances and actions being taken to resolve the problem.

Whenever corrective action is taken by the project owner, a determination of success or failure will be made by the CPM within five working days after receipt of notice that corrective action is completed, or the project owner will be notified by the CPM that coordination with other agencies will require additional time before a determination can be made.

Worker Environmental Awareness Program

BIO-5 The project owner shall develop and implement a CPM-approved Worker Environmental Awareness Program (WEAP) in which each of its employees, as well as employees of contractors and subcontractors who work on the project site or any related facilities during site mobilization, ground disturbance, grading, construction, operation and closure are informed about sensitive biological resources associated with the project.

The WEAP must:

1. Be developed by or in consultation with the Designated Biologist and consist of an on-site or training center presentation in which supporting written material and electronic media is made available to all participants;
2. Discuss the locations and types of sensitive biological resources on the project site and adjacent areas;
3. Present the reasons for protecting these resources;
4. Present the meaning of various temporary and permanent habitat protection measures;
5. Identify whom to contact if there are further comments and questions about the material discussed in the program; and
6. Include a training acknowledgment form to be signed by each worker indicating that they received training and shall abide by the guidelines.

The specific program can be administered by a competent individual(s) acceptable to the Designated Biologist.

Verification: At least 60 days prior to the start of any site (or related facilities) mobilization, the project owner shall provide to the CPM two copies of the proposed WEAP and all supporting written materials and electronic media prepared or reviewed by the Designated Biologist and a resume of the person(s) administering the program. The project owner shall provide in the Monthly Compliance Report the number of persons who have completed the training in the prior month and a running total of all

persons who have completed the training to date. At least 10 days prior to site and related facilities mobilization submit two copies of the CPM-approved materials.

Training acknowledgement forms signed during construction shall be kept on file by the project owner for a period of at least six months after the start of commercial operation.

During project operation, signed statements for operational personnel shall be kept on file for six months following the termination of an individual's employment.

Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP)

BIO-6 The project owner shall develop a BRMIMP and submit two copies of the proposed BRMIMP to the CPM (for review and approval) and to CDFG and USFWS (for review and comment) and shall implement the measures identified in the approved BRMIMP.

The BRMIMP shall be prepared in consultation with the Designated Biologist and shall identify:

1. All biological resources mitigation, monitoring, and compliance measures proposed and agreed to by the project owner;
2. All biological resources Conditions of Certification identified as necessary to avoid or mitigate impacts;
3. All biological resource mitigation, monitoring and compliance measures required in federal agency terms and conditions, such as those provided in a USFWS Biological Opinion or USACE Nationwide permit;
4. All biological resources mitigation, monitoring and compliance measures required in other state agency terms and conditions, such as those provided in CDFG Incidental Take Permit, Streambed Alteration Agreement or Regional Water Quality Control Board permits;
5. All biological resources mitigation, monitoring and compliance measures required in local agency permits, such as site grading and landscaping requirements;
6. All sensitive biological resources to be impacted, avoided, or mitigated by project construction, operation and closure;
7. All required mitigation measures for each sensitive biological resource;
8. Required habitat compensation strategy, including provisions for acquisition, enhancement, and management for any temporary and permanent loss of sensitive biological resources;
9. A detailed description of measures that shall be taken to avoid or mitigate temporary disturbances from construction activities;

10. All locations on a map, at an approved scale, of sensitive biological resource areas subject to disturbance and areas requiring temporary protection and avoidance during construction;
11. Aerial photographs, at an approved scale, of all areas to be disturbed during project construction activities - one set prior to any site or related facilities mobilization disturbance and one set subsequent to completion of project construction. Include planned timing of aerial photography and a description of why times were chosen;
12. Duration for each type of monitoring and a description of monitoring methodologies and frequency;
13. Performance standards to be used to help decide if/when proposed mitigation is or is not successful;
14. All performance standards and remedial measures to be implemented if performance standards are not met;
15. A preliminary discussion of biological resources related facility closure measures;
16. Restoration and re-vegetation plan;
17. A process for proposing plan modifications to the CPM and appropriate agencies for review and approval; and
18. A copy of all biological resources related permits obtained.

Verification: The project owner shall provide the specified document at least 60 days prior to start of any site (or related facilities) mobilization.

The CPM, in consultation with the CDFG, the USFWS and any other appropriate agencies, will determine the BRMIMP's acceptability within 45 days of receipt. If there are any permits that have not yet been received when the BRMIMP is first submitted, these permits shall be submitted to the CPM, the CDFG and USFWS within five days of their receipt and the BRMIMP shall be revised or supplemented to reflect the permit condition within 10 days of their receipt by the project owner. Ten days prior to site and related facilities mobilization the revised BRMIMP shall be resubmitted to the CPM.

The project owner shall notify the CPM no less than five working days before implementing any modifications to the approved BRMIMP to obtain CPM approval. Any changes to the approved BRMIMP must also be approved by the CPM in consultation with CDFG, the USFWS and appropriate agencies to ensure no conflicts exist.

Implementation of BRMIMP measures will be reported in the Monthly Compliance Reports by the Designated Biologist (i.e. survey results, construction activities that were monitored, species observed). Within 30 days after completion of project construction, the project owner shall provide to the CPM, for review and approval, a written construction closure report identifying which items of the BRMIMP have been completed, a summary of all modifications to mitigation measures made during the project's site mobilization, ground disturbance, grading, and construction phases, and which mitigation and monitoring items are still outstanding.

Closure Plan Measures

BIO-7 The project owner shall incorporate into the permanent or unexpected permanent closure plan and the BRMIMP measures that address the local biological resources related to facility closure.

The planned permanent or unexpected permanent closure plan shall address the following biological resources related mitigation measures (typical measures are):

1. Removal of transmission conductors when they are no longer used and useful;
2. Removal of all power plant site facilities and related facilities;
3. Measures to restore wildlife habitat to promote the re-establishment of native plant and wildlife species; and
4. Re-vegetation of the plant site and other disturbed areas utilizing appropriate seed mixture.

Verification: Draft permanent or unexpected closure measures shall be made part of the BRMIMP. At least 12 months prior to commencement of closure activities, the project owner shall address all biological resources related issues associated with facility closure, and provide final measures, in a Biological Resources Element. The Biological Resources Element shall be incorporated into the Facility Closure Plan and include a complete discussion of the local biological resources and proposed facility closure mitigation measures.

Habitat Conservation Plans

BIO-8 The project owner shall comply with all terms and conditions of the Habitat Conservation Plan for Stephens' Kangaroo Rat in Western Riverside County. The project owner shall comply with all terms and conditions of the Western Riverside Multiple Species Habitat Conservation Plan, including the following:

1. Burrowing owl survey requirements as described in the "Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area."
2. Completion of an MSHCP Compliance Report.

The terms and conditions shall be incorporated into the project's BRMIMP.

Verification: At least 30 days prior to the start of any site or related facilities mobilization activities, the project owner shall submit to the CPM evidence of compliance with the terms and conditions of the habitat conservation plans.

U. S. Army Corps of Engineers Permit

BIO-9 The project owner shall comply with the terms and conditions of U.S. Army Corps of Engineers Nationwide Permit 12 for utility line activities. The terms and conditions contained in the permit shall be incorporated into the project's BRMIMP.

Verification: Within 30 days of completion of project construction, the project owner shall provide to the CPM, for review and approval, a written construction termination report that includes measures taken to comply with Nationwide Permit 12.

Impact Avoidance Mitigation Features

BIO-10 Any time the project owner modifies or finalizes the project design they shall incorporate all feasible measures that avoid or minimize impacts to the local biological resources, including the following:

1. Design, install and maintain transmission line poles, access roads, pulling sites, and storage and parking areas to avoid identified sensitive resources;
2. Avoid wetland loss;
3. Design, install and maintain transmission lines and all electrical components in accordance with the Avian Power Line Interaction Committee (APLIC), *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* to reduce the likelihood of electrocutions of large birds;
4. Design, install and maintain transmission lines and all electrical components in accordance with the APLIC *Mitigating Bird Collisions with power lines: The State of the Art in 1994* to reduce the likelihood of bird collisions;
5. Eliminate any California Exotic Pest Plants of Concern (CalEPPC) List A species from landscaping plans;
6. Prescribe a road sealant that is non-toxic to wildlife and plants and use only fresh water when adjacent to wetlands, rivers, or drainage canals; and
7. Design, install, and maintain facility lighting to prevent side casting of light towards wildlife habitat; and
8. Restoration of temporarily disturbed areas to pre-project conditions.

Verification: All mitigation measures and their implementation methods shall be included in the BRMIMP. Implementation of the measures will be reported in the Monthly Compliance Reports by the Designated Biologist. Within 30 days after completion of project construction, the project owner shall provide to the CPM, for review and approval, a written construction termination report identifying how measures have been completed.

Mitigation Management to Avoid Harassment or Harm

BIO-11 The project owner shall implement the following measures to manage their construction site, and related facilities, in a manner to avoid or minimize impacts to the local biological resources:

1. Install temporary fencing and provide wildlife escape ramps for construction areas that contain steep walled holes or trenches if outside of an approved, permanent exclusionary fence. The temporary fence shall be

hardware cloth or similar materials that are approved by USFWS and CDFG;

2. Make certain all food-related trash is disposed of in closed containers and removed at least once a week;
3. Prohibit feeding of wildlife by staff and subcontractors;
4. Prohibit non-security related firearms or weapons from being brought to the site;
5. Prohibit pets from being brought to the site;
6. Report all inadvertent deaths of sensitive species to the appropriate project representative. Injured animals shall be reported to CDFG and the project owner shall follow instructions that are provided by CDFG; and
7. Minimize use of rodenticides and herbicides in the project area and prohibit the use of chemicals and pesticides known to cause harm to amphibians.

Verification: All mitigation measures and their implementation methods shall be included in the BRMIMP. Implementation of the measures will be reported in the Monthly Compliance Reports by the Designated Biologist. Within 30 days of completion of project construction, the project owner shall provide to the CPM, for review and approval, a written construction termination report identifying how measures have been completed.

Riverside County Ordinances

BIO-12 The project owner shall comply with all terms and conditions of Riverside County Ordinances 663.10, 655, and 810.2 and incorporate the terms and conditions into the project's BRMIMP, including the following:

1. Payment of the Stephens' Kangaroo Rat Mitigation Fee Ordinance fee.
2. Payment of the Western Riverside County Multiple Species Habitat Conservation Plan Mitigation Fee on the basis of the current rates for industrial projects.

Verification: At least 30 days prior to the start of any site or related facilities mobilization activities, the project owner shall submit to the CPM evidence of compliance with Riverside County Ordinances 663.10, 655, and 810.2, including evidence of payment of any fees required by said ordinances.

Riverside County General Plan

BIO-13 The project owner shall comply with all terms and conditions of Riverside County General Plan – Environmental Hazards and Resources Elements and incorporate the terms and conditions into the project's BRMIMP, including the following:

1. Disruption of sensitive vegetation shall be kept to a minimum, and adequate measures to protect vegetative species shall be taken.
2. Where possible, landscaping shall be accomplished through the use of vegetation native to the project site.

3. Adequate provision shall be made for the retention of existing trees and other flora.

Verification: At least 30 days prior to the start of any site or related facilities mobilization activities, the project owner shall submit to the CPM evidence of compliance with the Riverside County General Plan – Environmental Hazards and Resources Elements.

REFERENCES

Allen, E.G., P.E. Padgett, A. Bytnerowica and R. Minnich. 1998. Nitrogen deposition effects on coastal sage vegetation of southern California. Proceedings of the International symposium on Air Pollution and Climate Change Effects on Forest Ecosystems, Riverside, CA February 5-0. 1996. USDA, Forest Service, pacific Southwest Research Station, PSW-GTR-166, 131-140.

APLIC (Avian Power Line Interaction Committee) 2006. Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006. Edison Electric Institute, APLIC, and the California Energy Commission. Washington, D.C. and Sacramento, CA.

CWHRS (California Wildlife Habitat Relationships System web site); Biogeographic Data Branch, California Dept. of Fish and Game. Accessed June 15, 2006. http://www.dfg.ca.gov/whdab/html/wildlife_habitats.html#Tree.

Calpine (Calpine Corporation/Hatfield). 2001a. Inland Empire Energy Center, Application for Certification. Submitted to the California Energy Commission, August 17, 2001.

CARB (California Air Resources Board) 2002. The 2002 California Almanac of Emissions & Air Quality. Sacramento, CA.

CEC (California Energy Commission). 2003a Inland Empire Energy Center Final Staff Assessment. May 23, 2003.

CEC (California Energy Commission). 2006a. Staff Data Requests 1 through 80. March 15, 2006.

CEC (California Energy Commission). 2006b. Staff Data Requests 81 through 90. March 15, 2006.

CDFG (California Department of Fish and Game) 2006a. Electronic-mail statement from Jeff Brandt that a Streambed Alteration Agreement is not needed for SVEP. Sent December 26, 2006. Submitted to the CEC electronically via CH2MHill on December 27, 2006.

CDFG (California Department of Fish and Game) 2007a. CDFG Habitat Conservation Planning Branch web site. Available at: [www.dfg.ca.gov/hcpb/species/ssc/ssc.shtml]. Accessed March 2, 2007.

CH2MHill. 2006a. Applicant's Responses to CEC Staff Data Requests 1-80 for the Sun Valley Energy Project (05-AFC-3). April 17, 2006.

CH2MHill. 2006c. Applicant's Supplemental Responses to CEC Staff Data Requests 1-80 for the Sun Valley Energy Project (05-AFC-3). May 19, 2006.

CH2MHill. 2006d. Applicant's Responses to CEC Staff Data Requests 81-90 for the Sun Valley Energy Project (05-AFC-3). May 1, 2006.

CH2MHill. 2006e. Supplement I in Response to Data Requests 1-80, and Workshop Questions from April 25, 2006 for the Sun Valley Energy Project (05-AFC-3). May 30, 2006.

CH2MHill 2006f. Supplement II in Response to Data Requests 1-80, and Workshop Questions from April 25, 2006 for the Sun Valley Energy Project (05-AFC-3). Submitted to the California Energy Commission on July 7, 2006.

CH2MHill 2006h. Email communication and attachments from Doug Davy, CH2MHill Project Manager, to John Mathias, CEC and Robert Worl, CEC. December 8, 2006.

CH2MHill 2006i. Technical Memorandum: Sun Valley Energy Project –Drainage Features, and accompanying letters to California Department of Fish and Game, The Santa Ana Regional Water Quality Control Board, and the U.S. Army Corps of Engineers. Submitted to the Energy Commission electronically December 8, 2006.

CNDDB (California Natural Diversity Database). 2006. California Dept. of Fish and Game. Wildlife and Habitat Data Analysis Branch. Government Version, January 4, 2006 data.

Edgerton-Warburton, L.M. and E.B. Allen. 2000. Shifts in arbuscular mycorrhizal communities along an anthropogenic nitrogen deposition gradient. Ecol. Applic. 10:484-496.

RCIP (Riverside County Integrated Project web site); Western Riverside County Multiple Species Habitat Conservation Plan. Accessed June 15, 2006. [www.rcip.org/conservation.htm].

Riverside County Habitat Conservation Agency web site; Habitat Conservation Plan for the Stephens' Kangaroo Rat in Western Riverside County, California. Accessed June 15, 2006. [www.skrplan.org].

ROC (Report of Conversation) 2006a (tn: 37199). An electronic-mail exchange between R. Worl, CEC, and D. Davy, CH2MHill, regarding Corps of Engineers and Wetland Status Jurisdiction Issues. June 27, 2006.

Riverside County 2007a. Advisory Conditional Use Permit for the Sun Valley Energy Project. March 13, 2007.

SARWQCB (State Regional Water Quality Control Board, Region 8) 2006a. Electronic-mail statement from Adam Fischer that the SVEP project is subject to the State

Board's general construction permit. Submitted to the CEC via CH2MHill, December 13, 2006.

Tetra Tech 2006a. Letter from Dwight Mudry, Tetra Tech to Connie Bruins, CEC re: IEEC Incident & Wildlife Observation Report. May 25, 2006.

USEPA (U.S. Environmental Protection Agency web site). Accessed June 15, 2006. [www.epa.gov/owow/wetlands/laws/].

VSE (Valle del Sol Energy, LLC). 2005b. Application for Certification for Sun Valley Energy Project, Volumes 1 and 2. Submitted to the California Energy Commission, December 1, 2005.

VSE (Valle del Sol Energy, LLC). 2006a. Data Adequacy Supplement for Sun Valley Energy Project, Application for Certification. January 12, 2006.

USFS (U.S. Forest Service, San Bernardino National Forest) 2007a. Letter to the South Coast Air Quality Management District regarding possible impacts from nitrogen deposition from the Sun Valley Energy Project. February 26, 2007.

USFWS (U.S. Fish and Wildlife Service) 2006a. Email communication between Sally Brown, USFWS biologist and John Mathias, CEC biologist. February 1, 2006.

USFWS (U.S. Fish and Wildlife Service) 2007a. Telephone conversation between Sally Brown, USFWS biologist and John Mathias, CEC biologist. March 7, 2007.

USFWS (U.S. Fish and Wildlife Service) 2007b. Telephone conversation between Sally Brown, USFWS biologist and John Mathias, CEC biologist. March 22, 2007.

CULTURAL RESOURCES

Beverly E. Bastian

SUMMARY OF CONCLUSIONS

Staff has determined that the Sun Valley Energy Project (SVEP) would have no impact on known significant archaeological resources, historic structures, or ethnographic resources. With the adoption and implementation of the proposed Conditions of Certification, the SVEP would have no impact on significant archaeological resources which may be discovered during construction.

INTRODUCTION

This cultural resources assessment identifies the potential impacts of the SVEP to cultural resources. Cultural resources are defined under state law as buildings, sites, structures, objects, and historic districts. Three kinds of cultural resources are considered in this assessment: prehistoric, historic, and ethnographic.

Prehistoric archaeological resources are those materials relating to prehistoric human occupation and use of an area. These resources may include sites and deposits, structures, artifacts, rock art, trails, and other traces of Native American human behavior. In southern California, the prehistoric period began over 11,500 years ago and extended through the eighteenth century until 1769, the time when the first Spaniards settled in Alta California.

Historic-period resources are those materials, archaeological and architectural, usually associated with Euro-American exploration and settlement of an area and the beginning of a written historical record. They may include archaeological deposits, sites, structures, traveled ways, artifacts, or other evidence of human activity. Under federal and state requirements, historical cultural resources must be greater than 50 years old to be considered of potential historic importance. A resource less than 50 years of age may be historically important if the resource is of exceptional significance.

Ethnographic resources are those materials important to the heritage of a particular ethnic or cultural group, such as African Americans, Mexican Americans, Native Americans, or European, Asian, or Latino immigrants and their descendants. They may include traditional resource collecting areas, ceremonial sites, topographic features, cemeteries, shrines, or ethnic neighborhoods and structures.

For the SVEP, staff provides an overview of the environmental setting and history of the project area, an inventory of the cultural resources identified in the project vicinity, a consideration of the significance of those cultural resources, and an analysis of the effects of possible project impacts on those cultural resources, using significance criteria from the California Environmental Quality Act (CEQA). Where significant impacts to significant cultural resources, both known and not yet discovered, cannot be avoided, measures to mitigate the adverse effects on or loss of the resources are proposed. The primary concerns are to ensure that all potential impacts to cultural resources are

identified and that conditions are imposed on the project that ensure that any significant impacts are reduced to a less than significant level.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

Projects licensed by the Energy Commission are reviewed to ensure compliance with all applicable laws. For this project, in which there is no federal involvement,[1] the applicable laws are primarily state laws, in particular, CEQA. Although the Energy Commission has pre-emptive authority over local laws, it typically ensures compliance with local laws, ordinances, regulations, standards, plans, and policies.

CULTURAL RESOURCES Table 1
Laws, Ordinances, Regulations, and Standards

Applicable Law	Description
State	
Public Resources Code, section 21083.2	The lead agency may require reasonable steps to preserve a unique archaeological resource in place. Otherwise, the project applicant is required to fund mitigation measures to the extent prescribed in this section. This section also allows a lead agency to make provisions for archaeological resources unexpectedly encountered during construction, which may require the project applicant to fund mitigation and delay construction in the area of the find (CEQA).
California Code of Regulations, Title 14, section 15064.5, subsections (d), (e), and (f)	Subsection (d) allows the project applicant to develop an agreement with Native Americans on a plan for the disposition of remains from known Native American burials impacted by the project. Subsection (e) requires the landowner [possibly the project applicant] to rebury Native American remains elsewhere on the property if other disposition cannot be negotiated within 24 hours of accidental discovery and required construction stoppage. Subsection (f) directs the lead agency to make provisions for historical or unique archaeological resources that are accidentally discovered during construction, which may require the project applicant to fund mitigation and delay construction in the area of the find (CEQA Guidelines).

[1] Cultural resources are indirectly protected under provisions of the federal Antiquities Act of 1906 (Title 16, United States Code, Section 431 et seq.) and subsequent related legislation, policies, and enacting responsibilities, e.g., federal agency regulations and guidelines for implementation of the Antiquities Act.

California Code of Regulations, Title 14, section 15126.4(b)	This section describes options for the lead agency and for the project applicant to arrive at appropriate, reasonable, enforceable mitigation measures for minimizing significant adverse impacts from a project. It prescribes the manner of maintenance, repair, stabilization, restoration, conservation, or reconstruction as mitigation of a project's impact on a historical resource; discusses documentation as a mitigation measure; and advises mitigation through avoidance of damaging effects on any historical resource of an archaeological nature, preferably by preservation in place, or by data recovery through excavation if avoidance or preservation in place is not feasible. Data recovery must be conducted in accordance with an adopted data recovery plan (CEQA Guidelines).
Public Resources Code 5024.1	The California Register of Historic Resources (CRHR) is established and includes properties determined eligible for the National Register of Historic Places (NRHP)(criteria: A. events, B. important persons, C. distinctive construction, and D. data), State Historic Landmark No. 770 and subsequent numbered landmarks, points of historical interest recommended for listing by the State Historic Resources Commission, and historical resources, historic districts, and landmarks designated or listed by a city or county under a local ordinance. CRHR criteria are 1) events, 2) important persons, 3) distinctive construction, and 4) data.
Public Resources Code 5020.1 (h)	"Historic district" means a definable unified geographic entity that possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development.
California Health and Safety Code, Section 7050.5	This code makes it a misdemeanor to disturb or remove human remains found outside a cemetery. This code also requires a project owner to halt construction if human remains are discovered and to contact the county coroner.
Local	
Riverside County Ordinance 578.4	This ordinance declares that, as a matter of public policy, the recognition, protection, preservation, enhancement, perpetuation and use of sites and structures having historic significance within the County of Riverside are necessary and required in the interest of the health, safety, prosperity, and general welfare of the public.
Riverside County General Plan (Riverside County 2003) Policy OS 19.2	Review all proposed development for the possibility of archeological sensitivity.
Riverside County General Plan Policy OS 19.3	Employ procedures to protect the confidentiality and prevent inappropriate public exposure of sensitive archaeological resources when soliciting the assistance of public and volunteer organizations.

Riverside County General Plan Policy OS 19.4	Require a Native American Statement as part of the environmental review process on development projects with identified cultural resources.
Riverside County General Plan Policy OS 19.5	Transmit significant development proposals to the History Division of the Riverside County Regional Park and Open-Space District for evaluation in relation to the destruction/preservation of potential historic sites. Prior to the approval of any development proposal, feasible mitigation shall be incorporated into the design of the project and its conditions of approval.
Riverside County General Plan Policy OS 19.6	Enforce the Historic Building Code so that historic buildings can be preserved and used without posing a hazard to public safety.
Riverside County General Plan Policy OS 19.7	When possible, allocate resources and/or tax credits to prioritize the retrofit of County historic structures which are irreplaceable.
Environmental Reports Packet (Riverside County Planning Department 2007)	Provides standards for the preparation of archaeological or biological reports for privately initiated development proposals, including County review of consultant qualifications, a Memorandum of Understanding between the consultant and the county, notice to the county of the preparation of an archaeological report, and use by the consultant of a standard scope of work, a standard report outline, and a level-of-significance checklist.
Advisory Conditional Use Permit # CUP03499, Condition 60.PLANNING.16 (Riverside County 2007a)	Requires hiring an archaeologist to evaluate the potential for project impacts to cultural resources, to consult with Native American tribes, to determine if the monitoring of construction will be necessary, and to monitor and to halt construction to accommodate data recovery, if archaeological resources are found.

SETTING

REGIONAL SETTING

The project area is located in the Perris Valley, in the northern portion of the Peninsular Ranges Physiographic Province of California, at an elevation of about 1,460 feet above mean sea level. The local terrain presents sharp contrasts, with flat expanses of sandy soil interrupted by large, steep, isolated bedrock outcroppings. The project area is in transition from irrigated agricultural to residential and light industrial use.

PROJECT, SITE, AND VICINITY DESCRIPTION

The proposed project site is located approximately one mile due southeast of the town of Romoland, in Riverside County. The approximately 20-acre parcel on which the applicant proposes to build the SVEP is currently a plowed agricultural field, bounded on all sides by agriculture, except on the north, where the Burlington Northern and Santa Fe Railway (BNSFR) forms the boundary (VSE 2005b: 2-1; Fig. 1.1-3).

The proposed plant would have a nominal output of 500 megawatts (MW). The plant equipment would consist of five natural-gas-fired combustion turbine-generators, with a five-cell mechanical-draft evaporative cooling tower and circulating water pumps, natural-gas compressors, generator step-up and auxiliary transformers, a demineralizing water treatment system, and water-storage tanks. Other structures planned for the site would include a warehouse, a maintenance shop, an administration/control building, and a storm water holding pond (VSE 2005b: 2-2; Fig. 2.1-1).

The geotechnical study of the plant site recommends that, before construction, at least 36 inches of the surface soils of the plant site be stripped and re-laid or replaced, then compacted. The excavations for foundations (2 feet on average, 7 feet maximum) and for the underground cooling water pipes (7 feet on average, 12 feet maximum) would, therefore, be dug down through 3 or more feet of disturbed soils into undisturbed, native soils (VSE 2005b: Appendix 10G).

The proposed 12-inch-diameter, 750-foot-long underground natural gas pipeline would exit the plant site near the middle of the north boundary and run east to tap into existing SoCalGas high-pressure natural gas lines at Menifee Road. The construction would be primarily open-trench, with excavations to 4 feet in depth and 3-7 feet in width in a 50-to-75-foot-wide construction corridor (VSE 2005b: 8.3-13).

The proposed preferred 115kV overhead interconnection line route would run about 600 feet in length (beyond the plant site parcel). The proposed route would leave the plant site's northwest corner, cross the BNSFR tracks, and enter Southern California Edison's Valley Substation near its southwest corner, utilizing two 90-foot monopole towers, which would be located on either side of the railroad tracks (VSE 2005b: 2-1,Fig. 5.1-1).

There are, as well, two possible alternate routes being considered for this interconnection line, based on the recommendations of SCE, both designed to enter the substation at the same point, near the middle of the substation's southern boundary. The first alternate, about 900 feet in length (beyond the plant site parcel), would follow the alignment of the preferred route, but instead of entering the substation at its southwest corner, the first alternate would turn east at the substation boundary and run to the middle of the boundary before turning north to connect into the substation. The second alternate, about 950 feet in length (beyond the plant site parcel), would run southeast along the plant site's northern boundary, parallel to the BNSFR tracks, turn northeast across the tracks, turn north, and enter the substation at the same point as the first alternate (CH2MHill 2007a: Fig. 1; Davy 2007).

The proposed plant would require three water supply pipelines and two wastewater discharge pipelines. The water supply lines would include a 12-inch-diameter line for reclaimed water, a 4-inch-diameter line for potable water, and a 10-inch-diameter line for fire control water. The wastewater discharge lines would include an 8-inch-diameter non-reclaimable wastewater line and a sewer line of unspecified size. All three water supply lines and the sewer discharge line would tie into existing lines located along the northern boundary of the plant in a utility easement between the plant site parcel and the BNSFR. The non-reclaimable wastewater discharge pipeline would exit the plant site near the northwest corner, run northwest along the BNSFR tracks to McLaughlin

Road, then turn and run west for about 0.75 miles to tie into Inland Empire Energy Center's non-reclaimable wastewater line at Antelope Road (VSE 2005b: 2-1; Fig. 2-1.1).

Upon completion of the project, the vehicular access route into the SVEP would run east from Menifee Road on Rouse Road for some 1,400 feet, then turn north on Junipero Road for some 1,100 feet to the project entrance. The latter two roads are at present unpaved farm roads, so the project proposes to pave them for both car and truck use (VSE 2005b: 8.12-11; Fig. 8.12-2).

Prehistoric Setting

Regional Climatic and Environmental History

The climatic and environmental history of the region is important in understanding the human use of the project area in prehistory. During the Late Pleistocene, 22-11,000 years before the present (BP), conditions cooler and wetter than at present supported piñon-juniper forests at higher elevations, many expansive deep lakes, and savannah grasslands at low elevations. During the Early Holocene, 10-7,000 BP, gradual warming and drying conditions resulted in shrinking lakes and the replacement of woodlands by creosote scrub communities at lower levels. In Middle-to-Late Holocene times, 7,000 BP to the present, warm and dry conditions continued, dominated by summer monsoons in the desert southwest and winter storms along the Pacific Coast. Lakes in low-lying basins completely dried up or became ephemeral in nature. Locally specific fluctuations in temperature and aridity produced ecological variation of no greater magnitude than that known from historical records (VSE 2005b: 8.3-2).

The formation of Ancient Lake Cahuilla was a significant environmental change in the southern California region which occurred in the Late Holocene period. At its maximum extent, it was 110 miles long, 32 miles wide, and more than 300 feet deep at the center—three times the area and six times the depth of the Salton Sea (Schaefer n.d.), which now occupies the deepest part of the basin formerly occupied by Lake Cahuilla. The lake was created when the Colorado River deposited enough silt in its delta at the Gulf of California to dam itself up, with the result that its waters flowed north into the Salton Trough, a below-sea-level, relict northern extension of the Gulf of California. Experts vary in opinion as to when Lake Cahuilla formed. Some argue for as long ago as 10,000 years (Deméré n.d.), while others say 2,000 years ago (Schaefer n.d.). Once filled, the lake had an immense shoreline whose freshwater marshes and minor embayments supported fish, shellfish, waterfowl, large and small mammals, reptiles, amphibians, cattails, and other resources economically useful to Native Americans, who were drawn to the lake from all the surrounding areas—the Colorado River, the Mojave Desert, and the Peninsular Range (VSE 2005b: 8.3-2). The lake's level depended on inflow from the Colorado River compensating for the water lost to evaporation. Successive beach-line levels demonstrate that the river broke and rebuilt its dam several times in prehistory. The last high lakestand was about 400 years ago. The last desiccation of Lake Cahuilla was probably rapid—possibly requiring less than 60 years to leave the landscape seen today (Schaefer n.d.)—and the loss of its resources probably created an economic crisis for Native Americans, who had to adapt quickly to the change (VSE 2005b: 8.3-2).

Human Occupation in Southern California

The earliest generally accepted evidence for the human occupation of the North American continent, dating from about 12,000 years ago, is the occurrence of large, very skillfully made stone spear points, sometimes in association with the remains of large game animals. This occupation is known archaeologically as the Big Game Hunting Tradition. The Big Game Hunting Tradition, centered in the Great Plains and American Southwest but evidenced all over the continent, apparently had a nearly exclusive focus on the exploitation of now-extinct giant mammals (megafauna). Archaeologists believe that California did not have the Big Game Hunting Tradition, although its characteristic fluted projectile points have been found all over the state. Rather, when the glaciers of the Pleistocene era retreated and the warmer and drier climate of the Holocene caused the sea level to rise along the coast, the formerly plentiful inland lakes to shrink or dry up, and the extinction of megafauna (Moratto 1984: 78-81), California's late Pleistocene peoples were forced to adopt a general hunter-forager subsistence mode and to live near reliable water sources where food and plant resources were consistently available. After 7,000 BP, the present climate and environment were established in California, and Native Americans refined their exploitative abilities by developing their technology and adapting their lifestyle to the seasonal availability of a wide variety of local food sources.

Early Holocene Cultures (10,000-7,000 BP)

For the Early Holocene time period, archaeologists have identified a prevailing region-wide hunting tradition in southern California. Moratto presents a discussion of this synthesis of archaeological findings as the "Western Pluvial Lakes Tradition," characterized by: site locations on or near shorelines of bodies of water; economy based on hunting a variety of animals and birds and on gathering shellfish and vegetal products; absence of groundstone artifacts (indicative of non-use of hard seeds as food); characteristic percussion-flaked stone artifacts; and a diverse stone toolkit, including a distinctive flaked-stone crescent-shaped tool. The Western Pluvial Lakes Tradition (WPLT) has been defined on the basis of a relatively few large sites. Rather than interpreting the low frequency and small size of WPLT sites in general as indicative of a small population, archaeologists believe it was uncommon for these peoples to live in large groups or to settle in one place for long periods (Moratto 1984: 90-103).

Moratto sums up the primary cultural-historical developments of the Early Holocene era in southern California, listing several trends: increasing regional specialization, increasing technological diversification, increasing population, increasing sedentism, and intensification of plant resource use (Moratto 1984: 113, Table 3.10).

Middle Holocene Cultures (7,000 to 3,440 BP)

Important developments in this era in southern California include the appearance of many large shell midden sites and the wide distribution of shell beads, the introduction of milling stones, the introduction of pottery and clay figurines, and the elaboration of ground-stone technology in the form of discoidal and cogged stones. These are small, flat rocks, whose function is unknown, which have been carefully ground into shapes resembling wheels and gears, but without axle holes. These developments signal the greater exploitation of marine resources on the coast, the greater exploitation of vegetal

food sources throughout the region, and the development of a regional trading network (Moratto 1984: 147-53).

Through excavations, archaeologists have identified the defining features (types of artifacts, site locations in relation to ecological zones, and patterns of burial) of three differing southern California cultures which co-existed during this time period: the Pauma Culture and Sayles Culture known from inland sites and the La Jolla culture known from coastal sites. Archaeologists characterize the three collectively as Millingstone cultures because sites of all three evidence extensive use of milling stones, which were grinding stones used to process hard seeds into meal, an indication of increased use of vegetal food sources.

Comparisons of sites of the three cultures suggest a basic similarity in subsistence among them, with variations reflecting adaptation to particular local resources. The people of the La Jolla Culture exploited shellfish and other coastal resources and left behind large shell middens and evidence of one of the earliest known pottery types in North America (Moratto 1984: 147-50). Pauma Culture people differed from La Jolla people primarily in the location of their sites in inland valleys and canyons and in the absence of shellfish remains and pottery in their sites (VSE 2005b: 8.3-6). Sayles Culture peoples lived further inland, in the mountain and desert areas, where they apparently blended the subsistence activities of Mojave Desert groups with those of the Millingstone cultures to the west (VSE 2005b: 8.3-6 to 8.3-7; Moratto 1984: 152-53).

Late Holocene Cultures (3,440 to 168 years BP)

Archaeological sites of this period in southern California evidence three developmental changes: adaptation in place to a changing environment; assimilation of the technology and practices of Northern and Central California Native American groups; and immigration to the coastal area by Native American groups from the interior to the east (Moratto 1984: 153).

In this period, many coastal occupation sites were abandoned due to lagoon silting. As the use of maritime resources decreased, the use of terrestrial resources, particularly acorns, increased, resulting in a shift in site locations from the coast to interior uplands. Farther inland, very few sites of this age have been found, apparently reflecting the abandonment, or at least a considerable reduction in use, of the area until nearly the historic period.

The most important new practice introduced into southern California was the technology of processing acorns for food, in particular ground stone mortars and pestles. This practice appears to have been adopted from groups to the north. Another new practice introduced in this period was cremation of the dead, probably adopted from groups to the east.

Linguistic evidence suggests that, beginning around 500 B.C., at the latest, groups emigrated from the interior to the coast between northern San Diego County and southern Los Angeles County. They displaced the resident groups but rapidly adopted their technology and economic practices. Their descendants include the Luiseños, Gabrielinos, and Nicoleños. Their displaced neighbors to the north were probably the

ancestors of the Chumash, and to the south, the ancestors of the Diegueños (Moratto 1984: 156, 164-65). Archaeologists believe that sites dating to the late part of this period represent the ancestors of specific historic-period tribes, including Luiseño sites, dating 600 to 1750 A.D. and Diegueño sites, dating 500 to 1600 A.D. (Moratto 1984: 154-56; Fig. 4.17).

Ethnographic Setting (adapted from VSE 2005b: 8.3-8 to 8.3-9)

The proposed project area is located between the former territories of two tribes, the Luiseños and the Cahuillas. Luiseño territory included southwestern Riverside County, while the Cahuilla territory extended from the Perris Plain eastward across the San Jacinto Mountains. In pre-Spanish times, the two groups, while being distinctly separate socio-political entities, had linguistic and subsistence similarities, so the following discussion of the adaptation of the Luiseños provides a picture of Cahuilla lifeways as well.

The Spanish gave the name, “Luiseño,” to those California aboriginal peoples and their descendants who were brought under the jurisdiction of Mission San Luis Rey de Francia, established in 1798. The Luiseños were part of a group that originated in the Great Basin and migrated into the southern California coastal region 1,500 years ago, according to anthropologist A. L. Kroeber’s interpretation of the linguistic evidence. The Luiseño cultural territory covered about 1,500 square miles in San Diego and Riverside counties. Early Spanish explorers of the region provided descriptions of lush vegetation and frequent water pools, which suggest that the area then had more locally available water than it does today. Luiseño villages were usually located in defensible canyons or coves along the slopes near good water supplies. Village populations ranged between 50 and 200. The Luiseño population before the arrival of the Spanish is estimated to have been 10,000 persons. In 1925, their population was less than 500 as a result of European diseases.

The Luiseños supported their large population by alternating seasonally the inland exploitation of acorns and small game with the exploitation of coastal resources during the balance of the year. Acorns from the oak trees of the montane forests were the most important food resource for the Luiseños, but they also utilized the grasses and desert plants typical of the lowland areas for both food and medicines. The rich natural resources of the area allowed the Luiseño people to lead a predominately sedentary lifestyle without agriculture.

Many Luiseños were brought to Mission San Luis Rey, where, as neophytes, they were baptized and taught the Christian faith, the Spanish language, and the agriculture and basic European technology of the period. Despite the efforts of the San Luis Rey padres to convert them to a fully settled agricultural subsistence, the Luiseños maintained their previous settlement patterns and political leadership during the mission period.

Nonetheless, the secularization of Mission San Luis Rey and the disposition of its lands in the 1830s left the Luiseños without the support system for the life they had led as neophytes of the mission, and without the territory to support a return to their ancestral way of life. Later forces accelerated the decline of traditional Native American lifeways, including the discovery of gold, the granting of statehood to California, and the influx of

great numbers of Euro-Americans who came to the new state as a result of these developments.

Historical Setting

Because the climate of the Perris Valley was unsuitable for the kind of agriculture the Spanish padres introduced and practiced during the mission era (1769-1835), non-Native-American settlement did not occur on any significant scale in the project area until the late nineteenth century (VSE 2005b: 8.3-9).

Hispanic Period

Starting in 1769, Spain sought to reinforce its claims to Alta California by establishing a series of missions to pacify and Christianize the Indians there, with the object of converting them to stable, tax-paying citizens of New Spain. After establishing a mission at San Diego in 1769 and a mission at San Juan Capistrano in 1776, in 1798 the Spanish padres were interested in establishing a mission along the Camino Real about halfway between the two. They selected a location in the San Luis Rey River valley, near Oceanside, for the Mission San Luis Rey de Francia, because of the reliable water supply, abundant vegetation, and large native (Luiseño) population. At the height of its prosperity in 1818, Mission San Luis Rey was the richest and the most populous of all such establishments in California (VSE 2005b: 8.3-10).

The mission system started to decline in 1833, when the Mexican government decreed that the Indians were emancipated. In 1835 the missions were confiscated by the Mexican government, and mission lands, which were vast and encompassed the traditional territories of many California tribes, were then broken up and granted to private Mexican citizens for use as cattle ranches. Near the project area, grants were made in Temecula and in what would become Riverside. Parts of the Perris Valley were included in the grant called Sobrante de San Jacinto, given to Maria del Rosario and Estudillo de Aguirre on May 9, 1846 (VSE 2005b: 8.3-10).

American Period

With the Mexican cession of Alta California (and much of what would become the American Southwest) at the conclusion of the Mexican War in 1848, the project area came under the control of the United States. The wetter valleys north and south of the Perris Valley attracted the earliest settlement of the area. For some 30 years the Perris Valley was regarded as suitable only for jack rabbits. Gold was mined in the hills on a small scale, and in good years the valley was suitable for dry farming (VSE 2005b: 8.3-10).

It was the arrival of the railroad that brought permanent American settlement to the Perris Valley. In 1880, the California Southern Railroad (CSRR) was formed to build a line from the San Diego area to San Bernardino and then farther east to join a new railroad line being run west from Albuquerque through Arizona by the Atchison, Topeka & Santa Fe Railroad (ATSFRR). The CSRR built north and then east. By 1881 it had established a station named Pinacate, ¾ of a mile south of present-day Perris. This station connected the nearby gold mines to San Diego. The town of Perris, named after Fred Perris, the chief engineer and surveyor for the CSRR, was platted on the CSRR route in 1885. In November of that same year the CSRR line met and joined the

ATSFRR, connecting Perris (and San Diego) to Kansas City and the east. CSRR moved its Pinacate station to Perris in 1886. In 1887, J. A. Green joined CSRR's C. W. Smith and Fred Perris to form the San Jacinto Valley Railway, the line which forms the northern boundary of the proposed SVEP plant site parcel. The San Jacinto line was constructed in 1888, starting from Perris, where it joined the CSRR, and running across the valley to a terminus in San Jacinto. With easy access by rail and improvements in irrigation technology that had been used with great success in the Riverside area, towns sprouted throughout the Perris Valley (Dodge 1958, 1959a, 1959b; VSE 2005b: 8.3-10; CH2M Hill 2006a: Attachment CR-1).

F. E. Brown, one of the founders of Redlands, launched a scheme in 1890 to bring water from the Bear Valley Reservoir to the area where the town of Moreno would be built. Irrigation water began to flow into the Perris Valley by 1891. Grateful citizens wanted to name their new town after Mr. Brown, but he modestly declined the honor. So the settlement became known as Moreno, Spanish for "brown". Many acres were planted in citrus trees, and the area prospered. A series of drought years in the late 1890s, however, led to a serious drop in the level of the Bear Valley reservoir, and a series of court decisions granted what water was available to users who had established earlier claims. Without irrigation, the citrus groves were unable to survive the long dry summers, and the brief period of prosperity in the Perris Valley was over. European newspapers reported the Perris Valley as "A Valley on Wheels," as farms were abandoned and the newly built houses jacked up and moved to the more reliably watered Riverside area. Dry-land farmers remained in the valley and successfully experimented with drilling wells for irrigation and growing high-value forage crops such as alfalfa (VSE 2005b: 8.3-10).

Dry-land farming dominated regional land use until water from the Colorado River became available in the 1930s. Irrigation and, increasingly, water conservation have been important to the development of the area, and remnants of increasingly efficient systems can be seen, from unlined ditches, to culvert-and-standpipe, to modern portable aluminum pipe systems. After World War II, the area became an important potato-growing center. Rising water costs and a potato blight put an end to this enterprise in the 1960s. With the inception of the Del Webb Sun City development, land use has steadily shifted toward residential and retail/commercial development (VSE 2005b: 8.3-11).

Resources Inventory

Methods: Literature/Records Search and Native American Contacts

The applicant's records check and literature search sought to identify all known cultural resources within a one-half-mile radius of the proposed plant site, laydown area, and appurtenant linear facilities (defined as the SVEP study area), including known prehistoric and historic archaeological sites, historic architectural properties, and Native American sacred sites (VSE 2005b: 8.3-11). The applicant had staff at the California Historical Resources Information System (CHRIS) Eastern Information Center (EIC) at the University of California, Riverside, conduct a detailed record search (CHRIS EIC file No. 3494) for any previously identified cultural resources in the one-mile-diameter study area. The CHRIS search found that there were seven previous cultural resources

surveys in the vicinity, one of which partially covered the SVEP plant site parcel, and six previously recorded cultural resources within the study area. The listings for the National Register of Historic Places (NRHP), the California Register of Historical Resources, the California State Historic Landmarks, and the California Points of Historic Interest were checked, and no properties either listed or determined eligible for listing were located in the defined one-half-mile-radius study area (VSE 2005b: 8.3-11).

On March 28, 2006, the applicant attempted to reach the Riverside County Historical Commission and the Perris Valley Historical Museum and Association by telephone to request any information these organizations might have regarding the locations of archaeological sites and historical architectural structures within the study area (CH2M Hill 2006a: Attachment CR-2).

On August 24, 2005, the applicant wrote to the Native American Heritage Commission, asking that their (NAHC) database of Native American sacred lands be checked for any known properties in the SVEP study area and requesting contact information for Native Americans who have expressed an interest in being notified about development projects in the Perris Valley area (VSE 2005b: 8.3-14). On September 21, 2005, the applicant sent letters to the Native Americans on the NAHC-provided list, asking them if they knew of any cultural resources which could be affected by the proposed project (VSE 2005b: 8.3-10; Appendix 8.3A).

On January 6, 2006, Energy Commission staff also obtained from the NAHC the names and addresses of Native Americans interested in the Perris Valley area. On March 1, 2006, staff sent a letter to all listed Native Americans, informing them of the project and asking that they contact staff if they had any concerns about the project's potential effects on cultural resources.

Methods: Field Surveys

For the proposed SVEP, areas on which the applicant conducted a pedestrian survey for archaeological resources were: the 20-acre power plant parcel; an adjacent parcel to the south bounded by Junipero Road, Rouse Road, and Menifee Road; an adjacent parcel to the east bounded by Matthews Road and Menifee Road; the Valley Substation parcel; and the routes of the natural gas line, the overhead transmission line, and the non-reclaimable wastewater line. Clint Helton, a Registered Professional Archaeologist, surveyed the entire plant site parcel on September 21, 2005, using 20-meter-wide transects. Ground visibility on the proposed plant site averaged 40 percent. He surveyed the gas pipeline route and a construction corridor consisting of 50 feet to either side of the route center line using two 15-meter-wide transects running parallel to the route. Ground visibility in this area was not rated. Again using two 15-meter-wide transects parallel to the route, Helton surveyed the non-reclaimable wastewater pipeline route and a construction corridor consisting of 50 feet to either side of the route center line. Ground visibility was 80-100 percent. Helton also surveyed the area to the south of the existing SCE substation boundary, along the route of the SVEP's preferred overhead interconnection line. Ground visibility in this area averaged 40 percent. No artifacts or features of the prehistoric or historic eras were found in any of the surveyed areas (VSE 2005b: 8.3-13 to 8.3-14, Fig. 8.3-1; CH2M Hill 2006a: 19).

Helton additionally surveyed the two alternate routes being considered for the SVEP interconnection line on December 12, 2006, using ten-meter transects within 100-foot corridors for both alternate routes. Ground visibility was 80 percent. Helton found no cultural resources in this survey (CH2MHill 2007a)

The applicant examined old maps and aerial photographs of the area, and found no "aboveground structures" within ¼ mile of the linears or within ½ mile of the proposed plant site. On September 21, 2005, Clint Helton, the archaeologist who performed the archaeological survey of the plant site and transmission line, also conducted a windshield survey of the area for ½ mile around the plant site to identify any historic structures whose setting could be affected by the proposed plant and transmission line. He found no buildings or structures 45 years of age or older on the plant parcel, or on adjacent parcels, or along the gas and non-reclaimable wastewater pipelines, except for the BNSF Railway (VSE 2005b: 8.3-14 to 8.3-15). On March 29, 2006, Peggy Beedle, a qualified architectural historian recorded and evaluated the eligibility of the BNSF Railway segment and also conducted a windshield survey to identify historic architectural properties in the area within ½ mile of the proposed plant site and transmission line. She also found no buildings or structures 45 years or older on the plant parcel or the adjacent areas (CH2MHill 2006e: 6).

A geotechnical exploration, conducted by the applicant in September, 2005, at the proposed plant site, was intended to provide soil condition data to aid in the design of plant foundations. The study consisted of seven borings to a maximum depth of 31.5 feet below the existing ground surface (VSE 2005b: Appendix 10G).

Findings: Prehistoric and Historical Archaeological Resources Identified and Evaluated for Historical Significance

The six DPR 523 forms for archaeological sites, which the CHRIS provided to the applicant as part of their records search, indicate that one survey, Smith and Buysse (2000), covered a large area within the study area east and south of the proposed SVEP plant site, where a housing development is now under construction. This survey found and recorded three historic-period sites (33-9724, 33-9725, and 33-9726), all of which were the concrete foundations (and a scatter of artifacts) of residential and dairy buildings and features belonging to a dairy farm postdating 1948 (CH2M Hill 2006b).

The other three CHRIS DPR 523 forms evidence two additional surveys, Smith and Buysse (2002) and Drover (2003). The Smith and Buysse (2002) survey covered an area west and south of the proposed SVEP plant site and found and recorded multi-component site CA-RIV-6846H, a historic-era trash dump and a prehistoric bedrock milling stone site in a bedrock outcropping. The Drover (2003) survey of the area due south of the proposed SVEP plant site found and recorded site CA-RIV-7129, another bedrock milling stone site, but with an additional light chipped-stone scatter, and site CA-RIV-7130, a large prehistoric site with habitation debris, including portable milling stone fragments and a moderate-to-heavy chipped-stone scatter (CH2M Hill 2006b).

The recorders of the three dairy farm sites evaluated the remains and recommended the sites were not eligible for the California Register of Historical Resources (CRHR). The recorders of the other three archaeological sites, where prehistoric materials were present, did not formally evaluate them (the "Primary" DPR inventory form does not

require the evaluation of resources at the time of first recording). The applicant states that none of the three prehistoric sites appears to meet any of the criteria for nomination to the CRHR (CH2M Hill 2006b: 8.3-12 to 8.3-13). This recommendation is presumably based on the site descriptions in the DPR523s, since there are no indications in the AFC that SVEP archaeologists visited these sites to evaluate them.

The applicant's attempts to learn of locations of additional archaeological sites or historic structures from the Riverside County Historical Commission and the Perris Valley Historical Museum and Association were unsuccessful, nor did their messages asking for return calls garner responses (CH2M Hill 2006a: Attachment CR-2).

The applicant's recent archaeological survey of the proposed SVEP plant site and linear facility routes, as discussed above, found no archaeological resources in those locations (VSE 2005b: 8.3-13 to 8.3-14). So, based on the negative results of the field survey for archaeological deposits and of the archaeological literature search, no known, significant archaeological resources need be considered when evaluating the impacts of the construction of the SVEP.

The seven borings of the geotechnical study were not observed by an archaeologist, but staff finds that the soil descriptions in the report and in the detailed boring logs (VSE 2005b: Appendix 10G) are not consistent in color, composition, or content with the kinds of soils usually indicative of archaeological deposits.

While the negative findings of the applicant's archaeological survey and the lack of indications of cultural material in the borings of the geotechnical study would seem to indicate that the possibility of encountering buried archaeological remains is small, the presence of three known prehistoric sites within one mile of the proposed SVEP site (one of them a possible habitation site) suggests that possibility is not nil. Additional information provided by Jim Fagelson, the Cultural Resources Specialist for the Riverside County Planning Department, demonstrates that buried archaeological resources in this area do not necessarily have surface indications. Fagelson cited a recent instance in which a Native American burial with a large quantity of grave goods was found four feet down in a field located less than a mile from the proposed SVEP site. That field had been plowed for many years, but showed no surface indications of archaeological deposits. Fagelson further stated that it is known that there were many Native American villages in the area.

Findings: Historic Structures Identified and Evaluated for Historical Significance

None of the CHRIS-provided DPR 523 forms identified buildings or structures in the study area. The applicant's historical architectural survey identified the BNSFR, along the northern boundary of the proposed plant site parcel, as the only structure more than 45 years old in the vicinity of the proposed plant site (CH2M Hill 2006a: 8.3-15).

The segment of the BNSFR line that is adjacent to the proposed plant site was originally the San Jacinto Valley Railway, built in 1888 and running between Perris and San Jacinto, via Winchester and Hemet. So this structure is a cultural resource older than 45 years and important in the region because of its contribution to the growth and development of the Perris Valley. Therefore, on March 29, 2006, a qualified

architectural historian recommended that the line is eligible for the NRHP and the CRHR on the basis of Criterion A/1, association "with events that have made a significant contribution to the broad patterns of local or regional history..." (see Method and Threshold for Determining Significance, below). Also, she evaluated the integrity of the trackage she examined as good, with only the integrity of setting impaired by "intrusive industrial construction" (CH2M Hill 2006a: Attachment CR-1)

Because of the recommendation that the BNSFR segment adjacent to the proposed power plant is eligible for the CRHR and retains good integrity, any impacts from the construction or operation of the proposed SVEP to this significant cultural resource must be assessed.

Findings: Ethnographic Resources Identified and Evaluated for Historical Significance

The NAHC informed the applicant that no known Native American cultural resources in the project area were found in the NAHC's sacred lands database. On September 21, 2005, the applicant sent out letters (with maps of the project) to 43 Native Americans the NAHC identified as concerned about development projects in Riverside County. The applicant also made follow-up telephone calls to the same 43 individuals on March 27, 2006. Representatives of the following 17 southern California tribes or groups were contacted:

Agua Caliente Band of Cahuilla Indians
Augustine Band of Mission Indians
Cabazon Band of Mission Indians
Cahuilla Band of Indians
La Jolla Band of Mission Indians
Los Coyotes Band of Mission Indians
Morongo Band of Mission Indians
Pala Band of Mission Indians
Pauma and Yuima Band of Luiseno Indians
Pechanga Band of Mission Indians
Ramona Band of Mission Indians
Rincon Band of Mission Indians
San Luis Rey Band of Mission Indians
Santa Rosa Band of Mission Indians
Soboba Band of Mission Indians
Torres-Martinez Desert Cahuilla Indians
Twenty-Nine Palms Band of Mission Indians

To date, representatives of ten tribes or groups responded to the applicant's letters and/or telephone calls. The responding Native Americans did not identify any previously unknown ethnographic or archaeological resources in the vicinity of the project. The responses expressed the following (VSE 2005b: Appendix 8.3A; Attachment CR-6):

- desire for more information on the project;
- concern that there were many villages in that area;
- desire to be kept informed of project activities;

- desire for Native Americans to monitor ground-disturbing project construction activities;
- desire that the tribe have the opportunity to review all cultural material from the project prior to making final comments;
- desire that the tribe be consulted on the formulation of any archaeological treatment plan or action;
- desire to be notified if artifacts are found;
- request for copies of archaeological records and reports resulting from this project;
- advice that, by law, the county coroner must be contacted if human remains are found; and
- no concern.

Energy Commission staff requested and, on January 6, 2006, received from the NAHC the contact information for Native Americans with traditional ties to the project area. Staff sent letters to 35 Native Americans, representing all but two (Agua Caliente Band of Cahuilla Indians and Torres-Martinez Desert Cahuilla Indians) of the tribes/groups above. Staff to date has received responses from the Augustine Band of Mission Indians, the Morongo Band of Mission Indians, and the Ramona Band of Mission Indians. These groups recommended having a Native American monitor all ground-disturbing activities, and, in addition, the Morongo Band requested copies of any cultural resources report prepared for the project.

Unless further communications with Native Americans disclose significant sites of ethnographic concern, at this time no significant ethnographic sites have been identified that must be considered when evaluating the impacts of the construction of the SVEP.

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

Various laws apply to the evaluation and treatment of cultural resources. CEQA requires the Energy Commission to evaluate resources by determining whether they meet several sets of specified criteria. These evaluations then influence the analysis of potential impacts to the resources and the mitigation that may be required to ameliorate any such impacts.

The CEQA Guidelines provide a definition of a historical resource as a “resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the CRHR”, or “a resource listed in a local register of historical resources or identified as significant in a historical resource survey meeting the requirements of Section 5024.1 (g) of the Public Resources Code,” or “any object , building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the agency’s determination is supported by substantial evidence in light of the whole

record." (California Code of Regulations, Title 14, section 15064.5(a)). Historical resources that are automatically listed in the CRHR include California historical resources listed in or formally determined eligible for the NRHP and California Registered Historical Landmarks from No. 770 onward (Public Resources Code, Section 5024.1(d)).

Under the CEQA Guidelines, a resource is generally considered to be historically significant if it meets the criteria for listing in the CRHR. These criteria are essentially the same as the eligibility criteria for the NRHP. In addition to being at least 50 years old,[2] a resource must meet at least one of the following four criteria: is associated with events that have made a significant contribution to the broad patterns of our history (Criterion 1); or, is associated with the lives of persons significant in our past (Criterion 2); or, that embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values (Criterion 3); or, that has yielded, or may be likely to yield, information important to history or prehistory (Criterion 4) (Public Resources Code section 5024.1). In addition, historical resources must also possess integrity of location, design, setting, materials, workmanship, feeling, and association (California Code of Regulations, Title 14, section 4852(c)).

Even if a resource is not listed or determined to be eligible for listing in the CRHR, CEQA allows the lead agency to make a determination as to whether the resource is a historical resource as defined in Public Resources Code sections 5020.1 (j) or 5024.1. Whether a proposed project would cause a substantial adverse change in the significance of historical resources is the issue that staff analyzes to determine if the project may have a significant effect on the environment.

DIRECT/INDIRECT IMPACTS AND MITIGATION

In the abstract, direct impacts to cultural resources are those associated with project development, construction, and co-existence. Construction usually entails surface and subsurface disturbance of the ground, and direct impacts to archaeological resources may result from the immediate disturbance of the deposits, whether from vegetation removal, vehicle travel over the surface, earth-moving activities, excavation, or demolition of overlying structures. Construction can have direct impacts on historic standing structures when those structures must be removed to make way for new structures or when the vibrations of construction impair the stability of historic structures nearby. New structures can have direct impacts on historic structures when the new structures are stylistically incompatible with their neighbors and the setting, and when the new structures produce something harmful to the materials or structural integrity of the historic structures, such as emissions or vibrations.

Generally speaking, indirect impacts to archaeological resources are those which may result from increased erosion due to site clearance and preparation, or from inadvertent damage or outright vandalism to exposed resource components due to improved accessibility. Similarly, historic structures can suffer indirect impacts when project

[2] The Office of Historic Preservation's Instructions for Recording Historical Resources (1995) endorses recording and evaluating resources over 45 years of age to accommodate a five-year lag in the planning process.

construction creates improved accessibility, and vandalism and/or greater weather exposure become possible.

Ground disturbance accompanying construction at the proposed plant site and along the proposed linear facilities has the potential to directly impact archaeological resources, unidentified at this time. The potential direct, physical impacts of the proposed construction on unknown archaeological resources are commensurate with the extent of ground disturbance entailed in the particular mode of construction. This varies with each component of the proposed project. Placing the proposed plant into this particular setting could have a direct impact on the integrity of association, setting, and feeling of nearby standing historic structures.

Construction Impacts and Mitigation

Direct Impacts on Archaeological Resources and Proposed Mitigation

The applicant's record search revealed that there were six previously recorded properties located within one-half mile of the study area, but none in a location where construction impacts from the SVEP would affect them. Contacted Native Americans disclosed no archaeological sites in the project area, and the applicant's field survey of SVEP impact areas found no archaeological resources.

Thus, staff agrees with the applicant that no significant known archaeological resources have been identified in any of the areas where the proposed project would be built. Consequently, no project-related construction impacts from the SVEP that would materially impair the significance of known archaeological resources have been identified, and no mitigation would be required.

But because the proposed SVEP construction requires subsurface ground disturbance in an area that was utilized in both prehistory and history (as indicated in the sections on prehistoric and historic settings), and because Native Americans have expressed concern over the possibility of prehistoric sites in the area, staff must assume that the SVEP has the potential to encounter as yet unknown archaeological resources. If any newly found resources are eligible for the CRHR, the direct impacts from construction could materially impair the resources. Staff anticipates the following kinds of direct impacts to potential but as yet undiscovered archaeological deposits:

- Ground disturbance resulting from the pre-construction removal of at least 36" of the natural soils at the proposed plant site could directly impact archaeological resources, unidentified at this time, which could be present in the native soils of the site;
- The water supply and discharge lines, including a 12-inch-diameter line for reclaimed water, a 4-inch-diameter line for potable water, a 10-inch-diameter line for fire control water, and a sewer line of unspecified size, would tie into existing lines located along the northern boundary of the plant in a utility easement between the plant site parcel and the BNSFR. Installations of these pipelines could directly impact archaeological resources unidentified at this time, to the extent of the area and depth of the excavations of the trenches outside of the utility easement;

- Installation of the project's 8-inch-diameter non-reclaimable wastewater pipeline would require excavation of a trench projected to be at most 16 feet wide by 7 feet deep (CH2M Hill 2006a: Data Response 55). The new ground disturbance of trenching for the 0.75-mile-long non-reclaimable wastewater pipeline route, first paralleling the BNSFR tracks, then paralleling McLaughlin Road, could directly impact archaeological resources unidentified at this time, to the extent of the area and depth of the trench excavation;
- Construction of the short (600 feet) overhead transmission line would entail installation of a two off-site monopoles, necessitating ground disturbance in the form of boring for the footing holes and driving trucks and other equipment over the surrounding area to facilitate the boring and the pole and line installation. These activities have the potential to directly impact archaeological resources, unidentified at this time, to the extent of the area and depth of the footing hole and a surrounding construction impact zone 25 feet in diameter;
- The 12-inch-diameter natural gas pipeline would be laid in a 750-foot-long trench, which would be 48 inches deep and, at a maximum, 8 feet wide at the top. Installation of this pipeline could directly impact archaeological resources unidentified at this time, to the extent of the area and depth of the trench excavation.
- The improvement and paving of Rouse Road and Junipero Road after the completion of the plant would entail grading and other earthmoving activities which could directly impact archaeological resources unidentified at this time, to the extent of the length (some 1,400 feet and some 1,100 feet, respectively) and width of the two roads and an adjacent 30 feet or so to either side of the roads.

In recognition of the possibility that prehistoric archaeological deposits could be encountered during construction, CEQA advises a lead agency to make provisions for archaeological resources unexpectedly encountered during construction, and the project owner may be required to train workers to recognize cultural resources, fund mitigation, and delay construction in the area of the find (Public Resources Code, section 21083.2; California Code of Regulations, Title 14, sections 15064.5(f) and 15126.4(b)). Consequently, staff recommends that procedures for identifying, evaluating, and possibly mitigating impacts to newly discovered archaeological resources be put into place by means of Conditions of Certification to reduce those impacts to a less than significant level.

Despite the expectation that the project area would be of low sensitivity for archaeological resources (VSE 2005b: 8.3-15), the applicant has proposed a number of mitigation measures providing for the treatment of previously unknown archaeological resources discovered during SVEP construction (VSE 2005b: 8.3-16 to 8.3-18). These measures would include:

- Having a Designated Cultural Resources Specialist (CRS) who meets the "minimum qualifications for Principal Investigator on federal projects under the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation," and who would be retained for the duration of the SVEP construction period to inspect and evaluate any archaeological deposits encountered during construction;

- Implementing a construction worker training program presented by the CRS to construction supervisory personnel, which would explain the importance of and legal basis for the protection of archaeological resources and the steps to be taken if such resources are discovered during construction, and which would be recorded on a DVD for distribution to all construction personnel;
- Halting construction, if necessary, in the immediate area when "construction personnel or others" identify archaeological resources during construction, securing the area of the find, and having the CRS inspect and, in consultation with Energy Commission staff, evaluate the find, contacting the county coroner if human remains are found;
- Having the CRS record any find on DPR 523 forms, submit the forms to the Eastern Information Center of the CHRIS, and determine the significance of the find;
- Having the CRS allow construction to proceed if he/she determines the find is not significant, or, if further information is needed before a determination of significance can be made, having the CRS notify the Energy Commission and the State Historic Preservation Officer and prepare a plan and timetable for evaluating the find in consultation with staff at those agencies;
- Having the CRS prepare and execute a treatment plan if the CRS and the staff of the Energy Commission and the SHPO agree that the find is significant, emphasizing avoidance and focused on recovering a sample from the significant archaeological deposit with which archaeologists can address research questions;
- Having the CRS complete data recovery as soon as possible and notify, by letter, the Energy Commission staff and the project owner of the completion, so Energy Commission staff and the project owner can authorize the resumption of construction;
- Having the CRS arrange for the curation, at a qualified repository, of archaeological materials collected during all archaeological activities and any field notes and drawings and any final report completed for any excavation program associated with the SVEP project;
- Having the CRS prepare a report if buried archaeological deposits are found during construction, summarizing the investigatory program implemented to evaluate the find or finds and to recover data from it/them.

Notably, the applicant explicitly rejected the need for continuous archaeological monitoring of SVEP construction (VSE 2005b: 8.3-17) because the project area is judged to have low sensitivity for archaeological resources.

The general principles outlined in the applicant's mitigation measures, above, are consistent with staff's proposed measures for identifying, evaluating, and possibly mitigating impacts to previously unknown archaeological resources discovered during construction (see "Proposed Conditions of Certification," **CUL-1** through **CUL-9**, after "Conclusions and Recommendations," below). There are some differences in detail, but the only matter on which there would be disagreement is staff's provision of an archaeologist to monitor certain construction activities and, in addition, for a Native

American to monitor construction activities where any prehistoric cultural resources have been discovered. The construction activities which staff would have an archaeologist monitor are:

1. The initial soil stripping of the proposed plant site to the uppermost depth in the undisturbed subsoil which is sterile of cultural remains;
2. The boring of the holes for the transmission line monopoles; and
3. The excavation of the trenches for the natural gas pipeline and the non-reclaimable wastewater pipeline.

Staff believes that providing archaeological monitoring is warranted due to the extent of Native American interest in and concern for potential prehistoric archaeological resources in the project area, because the area has a long history of utilization by humans, and because of the recent find of Native American remains near the proposed project site, despite the absence of surface indications of such remains. The same concerns warrant having a Native American monitor when the monitoring archaeologist has determined that prehistoric cultural remains are present.

Direct Impacts on Historic Structures and Proposed Mitigation

No previously recorded historic structures were identified in the construction zones of the project, so no standing historic structures would be demolished for this project.

The only significant historic structure located close to project construction zones is the BNSFR trackage and right-of-way, the mid-line of which is located about 120 feet from the proposed plant parcel's northern boundary. Construction of the power plant could possibly affect the BNSFR trackage in two ways: the proposed plant and overhead transmission line (which crosses over the tracks between the proposed plant and the SCE Valley Substation where the line ties into the grid) could impair the integrity of setting of the rail line; and/or the temporary vehicle crossing at McLaughlin Road, proposed to facilitate construction (but which could become permanent if the county approves the application for it (VSE 2005b: 8.3-15), could impair the integrity of the materials of the rail line.

The applicant states that the proposed SVEP would not significantly affect either the integrity of setting or the integrity of material of the BNSFR trackage, because the setting has already been altered, and because the crossing construction's impact on the material condition of the rail line would be negligible. Even with the consideration that the railroad crossing would be permanent, staff agrees with the applicant's assessment, and concurs that the SVEP construction and operation would not significantly affect the BNSFR.

Another kind of direct impact on historic resources could result from the proposed plant's 90-foot-tall combustion turbine stacks introducing a new, vertical, visual element into the larger, otherwise mostly flat historic landscape. In the abstract, such a change could affect the integrity of association, setting, and feeling of standing historic structures even at a distance from the proposed plant and also affect the integrity of setting and feeling of the general cultural landscape. Staff believes, however, that although the combustion turbine stacks would affect the setting and feeling of the

general cultural landscape, the impact of SVEP would not be significant due to the extent of alteration of the landscape already completed or in process and the amount of additional alteration planned for this area.

No project-related construction impacts to standing historic structures that would materially impair their significance have been identified, so no mitigation would be required for this class of cultural resources.

Direct Impacts on Ethnographic Resources and Proposed Mitigation

No ethnographic resources, either previously recorded or newly disclosed in the communications with Native Americans initiated by the applicant for the proposed project, were identified in the vicinity of the project. Consequently, no mitigation measures would be required for this class of cultural resources.

Indirect Impacts

Neither the applicant nor staff identified any indirect impacts to cultural resources in the impact area of the proposed project, and so no mitigation of indirect SVEP impacts would be required for any class of cultural resources.

Operation Impacts and Mitigation

During operation of the proposed power plant, if a leak should develop in the gas or water pipelines supplying the plant, repair of the buried utility could require the excavation of a large hole. Such repairs could impact previously unknown subsurface archaeological resources in areas unaffected by the original trench excavation. The measures proposed for mitigating impacts to previously unknown archaeological resources during the construction of the plant and linear facilities (below) would also serve to mitigate impacts from repairs occurring during operation of the plant.

Cumulative Impacts and Mitigation

The construction of other projects in the same vicinity as the proposed project could affect unknown subsurface archaeological deposits (both prehistoric and historic). Project proponents for future projects in the area can mitigate impacts to as yet undiscovered subsurface archaeological deposits to less than significant by implementing mitigation measures requiring construction monitoring, evaluation of resources discovered during monitoring, and avoidance or data recovery for resources evaluated as significant (eligible for the CRHR or NRHP).

COMPLIANCE WITH APPLICABLE LORS

If the Conditions of Certification, below, are properly implemented, SVEP would result in a less than significant impact on newly found cultural resources or on those known resources which may be impacted in a previously unanticipated manner. The project would therefore be in compliance with CEQA and the other applicable state laws, ordinances, regulations, and standards listed in Table 1.

In its General Plan, Riverside County has policies promoting the preservation and re-use of historic sites and structures, the confidential identification of archaeological

resources, Native American consultation, review of proposed projects for potential historic sites, and mitigation of adverse impacts to historic sites (Riverside County 2003). Riverside County also requires archaeological consultants working in the County to meet the County's qualifications and provides consultants with standards for the preparation of archaeological reports for privately initiated development proposals (Riverside County Planning Department 2007). Additionally, Riverside County's Advisory Conditional Use Permit #CUP03499 for the SVEP project requires hiring an archaeologist: to evaluate the potential for project impacts to cultural resources; to consult with Native American tribes; to determine if the monitoring of construction will be necessary; to monitor construction; and, if archaeological resources are found, to have the authority to halt construction to accommodate data recovery (Riverside County 2007a).

Staff's CEQA review of the proposed SVEP in this document accomplishes Riverside County's goals and the requirements of the Advisory Conditional Use Permit with respect to identification of cultural resources and with respect to consultation with Native Americans. Staff's proposed Conditions of Certification, by ensuring CEQA compliance, impose requirements on the SVEP that would also accomplish Riverside County's goals and the requirements of the Advisory Conditional Use Permit with respect to minimum qualifications for a project archaeologist, with respect to archaeological monitoring of construction, and with respect to the monitors having the authority to halt construction for archaeological data recovery. Consequently, if SVEP implements staff's conditions, its actions would be consistent with the cultural resources preservation policies and with the Advisory Conditional Use Permit of Riverside County.

CONCLUSIONS AND RECOMMENDATIONS

Staff has determined that the SVEP would have no impact on known significant archaeological resources, historic structures, or ethnographic resources. With the adoption and implementation of the proposed Conditions of Certification, the SVEP would have no impact on potentially significant archaeological resources which may be discovered during construction.

Staff recommends that the Commission adopt the following proposed cultural resources Conditions of Certification (**CUL-1** through **CUL-9**, see below for list and details). These conditions are intended to facilitate the identification and assessment of previously unknown archaeological resources encountered during construction and to mitigate any significant impacts from the project on any newly found resources assessed as significant. To accomplish this, the conditions provide for:

- The hiring of a Cultural Resources Specialist, Cultural Resources Monitors, and Cultural Resources Technical Specialists;
- Cultural resources awareness training for construction workers;
- The archaeological and Native American (if needed) monitoring of ground-disturbing activities;
- The recovery of significant data from discovered archaeological deposits;

- The writing of a technical archaeological report on monitoring activities and findings; and
- The curation of recovered artifacts and associated notes, records, and reports.

When properly implemented and enforced, staff believes that these Conditions of Certification would mitigate any impacts to unknown significant archaeological resources newly discovered in the project impact areas to a less than significant level.

PROPOSED CONDITIONS OF CERTIFICATION

CUL-1 Prior to the start of pre-construction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction, the project owner shall obtain the services of a Cultural Resources Specialist (CRS), and one or more alternates, if alternates are needed, to manage all monitoring, mitigation, and curation activities. The CRS may elect to obtain the services of Cultural Resource Monitors (CRMs) and other technical specialists, if needed, to assist in monitoring, mitigation, and curation activities. The project owner shall ensure that the CRS makes recommendations regarding the eligibility to the California Register of Historical Resources (CRHR) of any cultural resources that are newly discovered or that may be affected in an unanticipated manner. No ground-disturbing activities shall occur prior to CPM (Compliance Project Manager) approval of the CRS, unless specifically approved by the CPM. Approval of a CRS may be denied or revoked for non-compliance on this or other projects.

CULTURAL RESOURCES SPECIALIST (CRS)

The resume for the CRS and alternate(s) shall include information demonstrating that the minimum qualifications specified in the U.S. Secretary of the Interior's Guidelines, including the minimum qualifications for a specialization in prehistoric archaeology, as published at Title 36 of the Code of Federal Regulations, Part 61, are met. The CRS shall also meet Riverside County's requirements for an archaeological consultant. In addition, the CRS shall have the following qualifications:

1. A technical specialty in anthropology or archaeology;
2. At least three years of archaeological resource mitigation and field experience in California;
3. At least one year of experience in a decision-making capacity on archaeological projects in California and the appropriate training and background to knowledgably make recommendations regarding the significance of cultural resources. and
4. An agreement with a curation facility, which meets the standards and requirements for the curation of cultural resources of the California State Historical Resources Commission's "Guidelines for the Curation of Archaeological Collections," for the curation of artifacts recovered and

associated records produced during project-related archaeological activities.

The resume of the CRS (and of the alternate CRS) shall include the names and telephone numbers of contacts familiar with the work of the CRS on referenced projects and shall demonstrate to the satisfaction of the CPM that the CRS has the appropriate education and experience to effectively implement the Conditions of Certification.

CULTURAL RESOURCES MONITOR (CRM)

CRMs shall have the following qualifications:

1. A BS or BA degree in anthropology, archaeology, historical archaeology, or a related field, and one year experience monitoring in California; or
2. An AS or AA degree in anthropology, archaeology, historical archaeology, or a related field, and four years experience monitoring in California; or
3. Enrollment in upper division classes pursuing a degree in the fields of anthropology, archaeology, historical archaeology, or a related field, and two years of monitoring experience in California.

CULTURAL RESOURCES TECHNICAL SPECIALISTS

The resume(s) of any additional technical specialists, e.g., historical archaeologist, historian, architectural historian, faunal analyst, floral analyst, or physical anthropologist, shall be submitted to the CPM for approval.

Verification: At least 45 days prior to the start of pre-construction site mobilization, the project owner shall submit the resume of the CRS and alternate(s), if desired, to the CPM for review and approval.

At least 10 days prior to a termination or release of the CRS, or within 10 days after resignation of the CRS, the project owner shall submit the resume of the proposed new CRS to the CPM for review and approval.

At least 20 days prior to pre-construction site mobilization, the CRS shall provide a letter naming anticipated CRMs for the project and stating that the identified CRMs meet the minimum qualifications for cultural resource monitoring required by this condition. If additional CRMs are obtained during the project, the CRS shall provide additional letters to the CPM identifying the CRMs and attesting to the qualifications of the CRMs, at least five days prior to the CRMs beginning on-site duties. At least 10 days prior to beginning specialized technical tasks, the resume(s) of any additional technical specialists shall be provided to the CPM for review and approval.

At least 10 days prior to the start of pre-construction site mobilization, the project owner shall confirm in writing to the CPM that the approved CRS will be available for on-site work and is prepared to implement the cultural resources Conditions of Certification.

CUL-2 Prior to the start of pre-construction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction, if

the CRS has not previously worked on the project, the project owner shall provide the CRS with copies of the AFC and the confidential cultural resources reports for the project (subject documents). The project owner shall also provide the CRS and the CPM with maps and drawings showing the footprint of the power plant and all linear facilities (subject maps). Maps shall include the appropriate USGS quadrangles and a map of the proposed plant site and linear facilities at an appropriate scale (e.g., 1:200 or 1" = 20') for plotting archaeological features. If the CRS requests enlargements for the plant site or strip maps for linear facility routes, the project owner shall provide copies to the CRS and CPM. The CPM shall review submittals and, in consultation with the CRS, approve those maps and drawings that are appropriate for use in cultural resources planning activities. No ground-disturbing activities shall occur prior to CPM approval of maps and drawings, unless specifically approved by the CPM.

At a minimum, the CRS shall consult weekly with the project construction manager to confirm area(s) to be worked during the next week, until ground-disturbing activities are completed.

Verification: At least 40 days prior to the start of pre-construction site mobilization, the project owner shall submit the subject documents to the CRS (if needed) and the subject maps and drawings to the CPM and CRS. The CPM will review the project owner's submittals in consultation with the CRS and approve maps and drawings suitable for cultural resources planning activities. On a weekly basis during pre-construction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction, a current schedule of anticipated project activity shall be provided to the CRS and CPM by letter, email, or fax.

CUL-3 Prior to the start of pre-construction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction, the project owner shall submit the Cultural Resources Monitoring and Mitigation Plan (CRMMP), as prepared by (or its preparation overseen by) the CRS, to the CPM for approval. The CRMMP shall be provided in the Archaeological Resource Management Report (ARMR) format, and, per ARMR guidelines, the author's name shall appear on the title page of the CRMMP. The CRMMP shall identify general and specific measures to minimize potential impacts to sensitive cultural resources. Implementation of the CRMMP shall be the responsibility of the CRS and the project owner. Copies of the CRMMP shall reside with the CRS, alternate CRS, each monitor, and the project owner's on-site manager. No ground-disturbing activities shall occur prior to CPM approval of the CRMMP, unless specifically approved by the CPM.

The CRMMP shall include, but not be limited to, the following elements and measures:

1. A proposed research design that includes a discussion of archaeological research questions and testable hypotheses, specifically applicable to the project area, and a discussion of artifact collection, retention/disposal, and curation policies as functions of the research questions formulated in the

research design. A prescriptive treatment plan may be included in the CRMMP for limited resource types.

2. The following statement added to the CRMMP's Introduction: "Any discussion, summary, or paraphrasing of the Conditions of Certification in this CRMMP is intended as general guidance and as an aid to the user in understanding the conditions and their implementation. The Conditions, as written in the Final Decision, shall supersede any summarization, description, or interpretation of the Conditions in the CRMMP." The Cultural Resources Conditions of Certification shall be attached as an appendix to the CRMMP.

3. Specification of the implementation sequence and the estimated time frames needed to accomplish all project-related archaeological tasks during pre-construction site mobilization; construction ground disturbance; construction grading, boring, and trenching; construction; and post-construction analysis phases of the project.

4. Identification of the person(s) expected to perform each of the archaeological tasks, their responsibilities; and the reporting relationships between project construction management and the mitigation and monitoring team.

5. A description of the inclusion of Native American observers or monitors, the procedures to be used to select them, and their role and responsibilities.

6. A description of all avoidance measures (such as flagging or fencing) which will be used to prohibit or otherwise restrict access to sensitive cultural resource areas that, once discovered, may need to be avoided during construction and/or operation, and identification of areas where these measures may be implemented. The discussion shall address how these measures would be implemented prior to the start of construction, or after discovery, and how long they would be needed to protect the resources from project-related effects.

7. A statement that all cultural resources encountered that cannot be treated prescriptively shall be recorded on a DPR form 523, mapped, and photographed. In addition, a discussion shall be included of the requirement that all records produced, all archaeological materials collected and retained, and all reports produced as a result of the archaeological investigations (survey, testing, monitoring, and data recovery) shall be curated in accordance with the California State Historical Resources Commission's "Guidelines for the Curation of Archaeological Collections," in a retrievable storage collection in a public repository or museum.

8. A discussion of any requirements, specifications, or funding needed for the curation of the materials to be delivered for curation and how

requirements, specifications, and funding shall be met. This shall include information indicating that the project owner will pay all curation fees and state that any agreements concerning curation will be retained and be available for audit for the life of the project. Also, the name and phone number of the contact person at the curating institution shall be provided.

9. A statement that the CRS has access to equipment and supplies necessary for site mapping, photography, and recovery of all cultural materials that are encountered during construction and cannot be treated prescriptively.

10. A description of the required Cultural Resources Report (CRR) and of the report format required by the County of Riverside.

Verification: At least 30 days prior to the start of pre-construction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction, the project owner shall submit the subject CRMMP to the CPM for review and approval. Ground-disturbing activities may not commence until the CRMMP is approved, unless specifically allowed by the CPM. A letter shall be provided to the CPM indicating that the project owner agrees to pay curation fees for any materials collected as a result of the archaeological investigations (survey, testing, monitoring, and data recovery).

CUL-4 The project owner shall submit the final Cultural Resources Report (CRR) to the County of Riverside for review and comment. After the project owner has received comments from the County of Riverside, he/she shall submit the CRR and the County's comments to the CPM for review and approval. The CRR shall be written by the CRS, shall be provided in the ARMR format, and shall conform to Riverside County' requirements for archaeological reports. The CRR shall report on all field activities including dates, times, locations, samplings, analyses, and findings. All survey reports, Department of Parks and Recreation (DPR) 523 forms, and additional research reports not previously submitted to the California Historical Resources Information System (CHRIS) and the State Historic Preservation Officer (SHPO) shall be included as appendices to the CRR. If the ARMR reports have previously been sent to the CHRIS, then receipt letters from the CHRIS shall be included in an appendix.

If the project owner requests a suspension or extension of construction activities, then a draft CRR that covers all cultural resource activities associated with the project shall be prepared by the CRS and submitted on the same day as the request to the CPM for review and approval. The draft CRR shall be retained at the project site in a secure facility until construction resumes or the project is withdrawn. If the project is withdrawn, then a final CRR shall be submitted at the same time as the request to the CPM for review and approval.

Verification: Within 90 days after completion of pre-construction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction, the project owner shall submit the subject CRR to the County of Riverside.

Thirty days thereafter, whether or not the County provides comments, the project owner shall submit the CRR and the County's comments, if any, to the CPM for review and approval. Within 10 days after CPM approval of the CRR, the project owner shall provide documentation to the CPM that copies of the CRR have been provided to the SHPO, the CHRIS, and the curating institution (if archaeological materials were collected and curated).

CUL-5 Prior to and for the duration of pre-construction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction, the project owner shall provide Worker Environmental Awareness Program (WEAP) training to all new workers within their first week of employment. The training shall be prepared by the CRS, may be conducted by any member of the archaeological team, and may be presented in the form of a video. The CRS shall be available (by telephone or in person) to answer questions posed by employees. The project owner will require all trained workers to sign a WEAP Certification of Completion form, provided by the CPM and unacceptable if altered. The training shall include:

1. A discussion of applicable laws and penalties under the law;

2. Samples or visuals of artifacts and visuals of archaeological deposits that might be found in the project area;

3. Instruction that the CRS, the alternate CRS, and the CRMs have the authority to halt construction to the extent necessary, as determined by the CRS, in the event of the discovery of or an unanticipated impact to a known cultural resource;

4. Instruction that employees are to halt work on their own in the vicinity of a potential cultural resources discovery and to contact their supervisor and the CRS or CRM, and that redirection of work shall be determined by the construction supervisor and the CRS;

5. An informational brochure that identifies reporting procedures in the event of a discovery;

6. An acknowledgment form to be signed by each worker indicating that they have received the training; and

7. A sticker that shall be placed on hard hats indicating that environmental training has been completed.

No ground-disturbing activities shall occur prior to implementation of the cultural resources portion of the WEAP program, unless specifically approved by the CPM.

Verification: At least 30 days prior to the beginning of pre-construction site mobilization, the CRS shall provide the training program draft text and graphics and the informational brochure to the CPM for review and approval, and the CPM will provide to the project owner a WEAP Certification of Completion form which the project owner

shall require each WEAP-trained worker to sign. The project owner shall provide in the Monthly Compliance Report the WEAP Certification of Completion forms of persons who have completed the training in the prior month and a running total of all persons who have completed training to date.

CUL-6 The project owner shall ensure that the CRS, alternate CRS, or CRMs and Native American monitors (if needed) shall monitor pre-construction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction full-time, to ensure there are no impacts to undiscovered cultural resources, under the following circumstances: during the removal of the uppermost soil layers at the plant site until the depth of culturally sterile soil is reached, as determined by the CRS; for the full width and length of excavations for the natural gas pipeline and the non-reclaimable wastewater pipeline; for the full width and length of improvements to Junipero Road and Rouse Road; and for the installation of the off-site monopole supports of the overhead transmission line. In the event that the CRS determines that full-time monitoring is not necessary in certain locations, a letter or e-mail providing a detailed justification for the decision to reduce the level of monitoring shall be provided to the CPM for review and approval prior to any reduction in monitoring. Full-time archaeological monitoring is defined as archaeological monitoring of all earth-moving activities on a construction site for as long as the activities are ongoing. Full-time archaeological monitoring may require one monitor per active earthmoving machine working in archaeologically sensitive areas.

The research design in the CRMMP shall govern the collection, treatment, retention/disposal, and curation of any archaeological materials encountered. On forms provided by the CPM, CRMs shall keep a daily log of any monitoring, any other cultural resources activities, and any instances of non-compliance with the Conditions of Certification and/or applicable LORS. Copies of the daily logs shall be provided by the CRS to the CPM, as directed by the CPM. In addition, the CRS shall use these logs to compile a monthly summary report on the progress or status of cultural resources-related activities. If there are no monitoring activities, the summary report shall specify why monitoring has been suspended. The CRS may informally discuss cultural resources monitoring and mitigation activities with Energy Commission technical staff.

Cultural resources monitoring activities are the responsibility of the CRS. Any interference with monitoring activities, removal of a monitor from duties assigned by the CRS, or direction to a monitor to relocate monitoring activities by anyone other than the CRS shall be considered non-compliance with these Conditions of Certification.

Upon becoming aware of the situation, the CRS and/or the project owner shall notify the CPM by telephone or e-mail within 24 hours of any incidents of non-compliance with the Cultural Resources Conditions of Certification and/or applicable LORS. The CRS shall also recommend corrective action to resolve the problem or achieve compliance with the Conditions of Certification. When

the issue is resolved, the CRS shall write a report describing the issue, the resolution of the issue, and the effectiveness of the resolution measures. This report shall be provided in the next Monthly Compliance Report (MCR).

Verification: At least 30 days prior to the start of pre-construction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction, the CPM will provide to the CRS reproducible copies of forms to be used as daily monitoring logs. Each day that no discoveries are made, the CRS shall provide a statement that "no cultural resources over 50 years of age were discovered" to the CPM as an email or in some other form acceptable to the CPM, except during suspension of construction or when construction is concluded. While monitoring is on-going, the project owner shall include in each MCR a copy of the monthly summary report of cultural resources-related monitoring prepared by the CRS. Copies of daily logs shall be retained by the project owner on-site during construction.

At least 24 hours prior to the date of planned reduction in monitoring, documentation justifying a reduced level of monitoring shall be submitted to the CPM.

CUL-7 Prior to the initiation of pre-construction site mobilization, the project owner shall identify one or more Native Americans who can potentially monitor construction. Preference in selecting potential monitors shall be given to Native Americans with traditional ties to the project area. If efforts to obtain the services of Native American monitors are unsuccessful, the project owner shall immediately inform the CPM. If more than one group of Native Americans wish to provide a monitor, then Native American monitoring shall be arranged in a manner (part-time or rotating, etc.) that allows participation by all concerned Native American groups. If Native American artifacts are discovered, the project owner shall engage one or more Native American monitors as soon as possible to monitor ground-disturbing activities in the area where the artifacts were found. Native American monitoring shall continue until culturally sterile soils, as determined by the CRS, are encountered in the areas where Native American artifacts were found and during any data recordation or recovery of Native American cultural materials.

During and after construction, the project owner shall follow up on the requests from Native American tribes or groups to be notified if artifacts are found, to be consulted on the formulation of any archaeological treatment plan or action, to have the opportunity to review all cultural material from the project prior to making final comments, and to receive copies of all archaeological records and reports resulting from the project.

Verification: At least 30 days prior to the start of pre-construction site mobilization, the project owner shall obtain from the Native American Heritage Commission guidelines for Native American archaeological monitoring and contact information for Native Americans interested in the cultural resources of the project area. If Native American artifacts are discovered by the CRS or CRM during construction, the project owner shall notify the CPM, identifying within 48 hours the Native Americans retained to conduct monitoring. If the project owner is unable to secure the services of a Native American monitor, the CPM will either identify potential monitors or will allow ground-disturbing activities to proceed without a Native American monitor.

No later than 30 days following the discovery of any Native American cultural materials, the project owner shall submit to the CPM copies of letters of transmittal of requested information to the Chairperson of those Native American tribes or groups who requested it. Additionally, the project owner shall submit to the CPM copies of letters of transmittal for all subsequent responses to Native American requests for notification, consultation, review privileges, and reports and records.

CUL-8 The project owner shall grant authority to halt construction to the CRS, alternate CRS, and the CRMs in the event previously unknown cultural resources sites or materials are encountered, or if known resources may be impacted in a previously unanticipated manner. Redirection of ground-disturbing activities shall be accomplished under the direction of the construction supervisor in consultation with the CRS.

In the event that cultural resources greater than 50 years of age, or cultural resources considered exceptionally significant, are found or impacts on such resources can be anticipated, construction shall be halted or redirected in the immediate vicinity of the find and shall remain halted or redirected until all of the following have occurred:

1. The CRS has notified the project owner, and the CPM has been notified within 24 hours of the discovery, or by the following Monday morning if the cultural resources discovery occurs between 8:00 AM on Friday and 8:00 AM on Sunday. Notice to the CPM must include a description of the discovery (or of changes in character or attributes of a known cultural resource), the action taken (i.e., work stoppage or redirection), a recommendation of eligibility, and recommendations for mitigation of significant impacts, whether or not a determination of significance has been made.

2. The CRS has completed field notes, measurements, and photography for a Department of Parks and Recreation (DPR) 523 primary form. The "Description" entry of the 523 form shall include a recommendation on the significance of the find. The project owner shall submit completed forms to the CPM.

3. The CRS, the project owner, and the CPM have conferred, and the CPM has concurred with the recommended eligibility of the discovery and approved the CRS's proposed data recovery, if any, including the curation of the artifacts, or other appropriate mitigation; and

4. Any necessary data recovery and mitigation have been completed.

Verification: At least 30 days prior to the start of ground-disturbing activities, the project owner shall provide the CPM and CRS with a letter confirming that the CRS, alternate CRS, and CRMs have the authority to halt construction activities within 100 feet of a cultural resources discovery, and that the project owner shall ensure that the CRS notifies the CPM within 24 hours of a discovery, or by Monday morning if the cultural resources discovery occurs between 8:00 AM on Friday and 8:00 AM on Sunday. Completed DPR form 523s shall be submitted to the CPM for review and approval no

later than 48 hours following the notification of the CPM, or 48 hours following the completion of data recordation/recovery, whichever is more appropriate for the subject cultural material.

CUL-9 If the removed soils native to the proposed plant site prove unsuitable for restoring to the site, and either a disposal site for these unsuitable soils and/or a borrow site for suitable replacement soils must be acquired, the CRS shall survey these disposal and borrow sites for cultural resources, if they have not been previously disturbed or surveyed. When the survey is completed, the CRS shall convey the results and recommendations for further action to the project owner and the CPM, who will determine what, if any, further action is required. If these surveys identify significant cultural resources which cannot be avoided, **CUL-6**, **CUL-7**, and **CUL-8** will apply. The CRS will report on the methods and results of these surveys in the CRR.

Verification: As soon as the project owner knows that borrow and disposal sites will be required, he/she shall notify the CRS and CPM. At least 10 days prior to any ground-disturbing activities on the borrow and/or disposal sites, the CRS shall determine whether they need to be surveyed for cultural resources. The CRS shall notify the project owner and the CPM that either no cultural resources survey is required, or that a cultural resources survey will be conducted.

REFERENCES

CH2M Hill 2006a. Applicant's Responses to CEC Staff Data Requests 1-80 for the Sun Valley Energy Project (05-AFC-3). April 17, 2006.

CH2M Hill 2006b. Applicant's Confidential Response to CEC Staff Cultural Resources Data Request 49 for the Sun Valley Energy Project (05-AFC-3). April 17, 2006.

CH2M Hill 2006e. Supplement I in Response to Data Requests 1-80, and Workshop Questions from April 25, 2006 for the Sun Valley Energy Project (05-AFC-3). May 30, 2006.

CH2MHill 2007a. Technical Memorandum: Sun Valley Energy Project–Supplemental Cultural Resources Survey for SVEP. Clint Helton to Doug Davy. Submitted to the Energy Commission electronically, January 16, 2007.

Davy, Douglas 2007. Email exchange between Doug Davy, SVEP Environmental Project Manager, and Robert Worl, CEC Certification Project Manager, clarifying the length of the alternative interconnection line routes. 1/11/07.

Deméré, Thomas A., n.d. "Silent Beaches: Ancient Lake Cahuilla and its Geologic Setting." www.sdnhm.org/research/paleontology/lakecahuilla.html. Accessed 3/24/06.

Dodge, Richard V. 1958. "The Fallbrook Line." www.sdrm.org/history/cs/calsouth.html. Accessed 4/17/06.

Dodge, Richard V. 1959a. "Perris and Its Railroad." www.sdrm.org/history/cs/perris.html. Accessed 4/17/06.

Dodge, Richard V. 1959b. "Where the Santa Fe Began." www.sdrm.org/history/cs/natcity.html. Accessed 4/17/06.

Drover, Christopher E. 2003, "A Cultural Resources Inventory for 170 Acres in Sun City, Riverside County, California." Unpublished report, 2003.

Fagelson, Jim. 2007. Personal communication, via telephone, 8/29/06.

Moratto, Michael J. 1984. *California Archaeology*. Orlando, Fla.: Academic Press.

Riverside County 2003. Riverside County General Plan. http://www.rctlma.org/generalplan/index.html. Accessed 6/8/06.

Riverside County 2007a. Advisory Conditional Use Permit for the Sun Valley Energy Project. March 13, 2007.

Riverside County Planning Department 2007. Cultural Resources Review. http://www.tlma.co.riverside.ca.us/planning/content/devproc/culture/cult_resource.html. Accessed 4/6/07.

Schaefer, Jerry, n.d. "Prehistoric Native American Responses to Ancient Lake Cahuilla." www.saltonsea.ca.gov/ltnav/library_content/Hydrology/ancient_lake_cahuilla.pdf, Accessed 3/24/06.

Smith, Brian F. and Johanna L. Buysse. 2000. "An Archaeological/Historical Study for the Menifee Ranch Project, Perris Valley, County of Riverside—Specific Plan Number 301, Amendment #1." Brian F. Smith and Associates. Submitted to PRI. Unpublished report (EIC No. 1085879) on file at University of California, Riverside, Eastern Information Center, U.C. Riverside, Calif.

Smith, Brian F., and Johanna L. Buysse. 2002. "An Archaeological/Historical Study for the Menifee West Tract 29835 Project." Brian F. Smith and Associates. Unpublished report.

VSE (Valle del Sol Energy, LLC). 2005b. Application for Certification for Sun Valley Energy Project, Volumes 1 and 2. Submitted to the California Energy Commission, December 1, 2005.

HAZARDOUS MATERIALS MANAGEMENT

Rick Tyler and Alvin Greenberg

SUMMARY OF CONCLUSIONS

Staff's evaluation of the proposed project (with staff's proposed mitigation measures) indicates that hazardous materials use would not present a significant impact to the public. With adoption of the proposed conditions of certification, the proposed project will comply with all applicable laws, ordinances, regulations and standards. In response to Health and Safety Code, section 25531 et seq., the applicant would be required to develop a Risk Management Plan. To insure adequacy of the Risk Management Plan, staff's proposed conditions of certification would require that the Risk Management Plan be submitted for concurrent review by the United States Environmental Protection Agency, the Riverside County Environmental Health Department, and the California Energy Commission staff. In addition, staff's proposed conditions of certification require the Riverside County's Environmental Health Department's review, and staff review and approval of the Risk Management Plan prior to delivery of any hazardous materials to the facility. Other proposed conditions of certification address the issue of the transportation, storage, and use of aqueous ammonia.

INTRODUCTION

The purpose of this Hazardous Materials Management analysis is to determine if the proposed Sun Valley Energy Project (SVEP) has the potential to cause significant impacts on the public as a result of the use, handling, storage, or transportation of hazardous materials at the proposed facility. The risk of impact associated with a hazardous materials release is extremely low as impacts associated with a release are localized and have a very low probability of occurance. Any potential impact on the environment that could be associated with a release of hazardous materials form the project would be addressed in staff's Biology Analysis. If significant adverse impacts on the public are identified, Energy Commission staff must also evaluate the potential for facility design alternatives and additional mitigation measures to reduce impacts to the extent feasible.

This analysis does not address potential exposure of workers to hazardous materials used at the proposed facility. Employers must inform employees of hazards associated with their work and provide employees with special protective equipment and training to reduce the potential for health impacts associated with the handling of hazardous materials. The **Worker Safety and Fire Protection** section of this document describes the requirements applicable to the protection of workers from such risks.

Aqueous ammonia (19 percent ammonia in aqueous solution) is the only acutely hazardous material proposed to be used or stored at the SVEP in quantities exceeding the reportable amounts defined in the California Health and Safety Code, section 25532 (j) (VSE 2005b Table 8.5-2). Aqueous ammonia will be used for controlling oxides of nitrogen (NO_x) emissions through selective catalytic reduction. The use of aqueous ammonia significantly reduces the risk that would otherwise be associated with use of the more hazardous anhydrous form of ammonia. Use of the aqueous form eliminates

the high internal energy associated with the anhydrous form which is stored as a liquefied gas at elevated pressure. The high internal energy associated with the anhydrous form of ammonia can act as a driving force in an accidental release, which can rapidly introduce large quantities of the material to the ambient air and result in high down-wind concentrations. Spills associated with the aqueous form are much easier to contain than those associated with anhydrous ammonia and emissions from aqueous ammonia spills are limited by the slow mass transfer from the surface of the spilled material.

Other hazardous materials, such as mineral and lubricating oils, corrosion inhibitors and water conditioners, will be present at the proposed facility. Hazardous materials used during the construction phase include gasoline, diesel fuel, motor oil, hydraulic fluid, welding gases, lubricants, solvents, paint, and paint thinner. No acutely toxic hazardous materials will be used onsite during construction. None of these materials pose significant potential for off-site impacts as a result of the quantities on-site, their relative toxicity, their physical state, and/or their environmental mobility. Although no natural gas is stored, the project will also involve the handling of large amounts of natural gas. Natural gas poses some risk of both fire and explosion. Natural gas will be delivered through a new 12-inch-diameter 750-foot-long connection to an existing natural gas transmission line which is operated by Southern California Gas Company. The connection will be in a utility easement that lies entirely within the SVEP project parcel. The SVEP project will also require the transportation of aqueous ammonia to the facility. This document addresses all potential impacts associated with the use and handling of hazardous materials.

LAWS, ORDINANCES, REGULATION, AND STANDARDS

The following federal, state, and local laws and policies apply to the protection of public health and hazardous materials management. Staff's analysis examines the project's compliance with these requirements.

HAZARDOUS MATERIALS MANAGEMENT Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable Law	Description
Federal	
The Superfund Amendments and Reauthorization Act of 1986 (42 USC §9601 et seq.)	Contains the Emergency Planning and Community Right To Know Act (also known as SARA Title III)
The Clean Air Act (CAA) of 1990 (42 USC 7401 et seq. as amended)	Established a nationwide emergency planning and response program and imposed reporting requirements for businesses which store, handle, or produce significant quantities of extremely hazardous materials.
The CAA section on Risk	Requires the states to implement a comprehensive system to inform local agencies and the public when a significant quantity of

Management Plans (42 USC §112(r)	such materials is stored or handled at a facility. The requirements of both SARA Title III and the CAA are reflected in the California Health and Safety Code, section 25531, et seq.
49 CFR 172.800	U.S. Department of Transportation (DOT) requirement that suppliers of hazardous materials prepare and implement security plans.
49 CFR Part 1572, Subparts A and B	Requires suppliers of hazardous materials to ensure that all their hazardous materials drivers are in compliance with personnel background security checks.
The Clean Water Act (CWA) (40 CFR 112)	Aims to prevent the discharge or threat of discharge of oil into navigable waters or adjoining shorelines. Requires a written Spill Prevention, Control, and Countermeasures (SPCC) plan to be prepared for facilities that store oil that my leak into navigable waters.
Title 49, Code of Federal Regulations, Part 190	Outlines gas pipeline safety program procedures.
Title 49, Code of Federal Regulations, Part 191	Addresses transportation of Natural and Other Gas by Pipeline: Annual Reports, Incident Reports, and Safety-Related Condition Reports, requires operators of pipeline systems to notify the U.S. Department of Transportation of any reportable incident by telephone and then submit a written report within 30 days.
Title 49, Code of Federal Regulations, Part 192	Addresses transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards, specifies minimum safety requirements for pipelines and includes material selection, design requirements, and corrosion protection. The safety requirements for pipeline construction vary according to the population density and land use, which characterize the surrounding land. This part also contains regulations governing pipeline construction, which must be, followed for Class 2 and Class 3 pipelines, and requirements for preparing a Pipeline Integrity Management Program.
State	
The California Health and Safety Code, section 25534	Directs facility owners, storing or handling regulated substances (formerly called “acutely hazardous materials”) in reportable quantities, to develop a Risk Management Plan (RMP) and submit it to appropriate local authorities, the United States Environmental Protection Agency (EPA), and the designated local administering agency for review and approval. The plan must include an evaluation of the potential impacts associated with an accidental release, the likelihood of an accidental release occurring, the magnitude of potential human exposure, any preexisting evaluations or studies of the material, the likelihood of the substance being handled in the manner indicated, and the accident history of the material. This new, recently developed program supersedes the California Risk Management and Prevention Plan (RMPP).

Title 8, California Code of Regulations, Section 5189	Requires facility owners to develop and implement effective safety management plans to insure that large quantities of hazardous materials are handled safely. While such requirements primarily provide for the protection of workers, they also indirectly improve public safety and are coordinated with the RMP process.
Title 8, California Code of Regulations, Section 458 and Sections 500 to 515	Set forth requirements for design, construction and operation of vessels and equipment used to store and transfer ammonia. These sections generally codify the requirements of several industry codes, including the American Society for Material Engineering (ASME) Pressure Vessel Code, the American National Standards Institute (ANSI) K61.1 and the National Boiler and Pressure Vessel Inspection Code. These codes apply to anhydrous ammonia but are also used to design storage facilities for aqueous ammonia.
California Health and Safety Code, section 41700	Requires that "No person shall discharge from any source whatsoever such quantities of air contaminants or other material which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property."
California Safe Drinking Water and Toxic Enforcement Act (Proposition 65)	Prevents certain chemicals that cause cancer and reproductive toxicity to be discharged into sources of drinking water.
Local	
Riverside County Ordinance 651.3	Requires preparation of a Hazardous Materials Certificate of Registration and Hazardous Materials Business Plan for storage of hazardous materials.
Riverside County Ordinance 651.3, Section 9	Requires preparation of a Risk Management Plan for regulated substances.
Riverside County Ordinance 787.2 Fire Code	Requires proper storage and handling of hazardous materials.

The Certified Unified Program Authority (CUPA) with responsibility to review RMPs and Hazardous Materials Business Plans is the Riverside County Fire Department, Health Hazardous Materials Division (HHMD). In regards to seismic safety issues, the site is located in Seismic Risk Zone 4. Construction and design of buildings and vessels storing hazardous materials will meet the seismic requirements of CCR Title 24 and 2001 California Building Code.

SETTING

Several factors associated with the area in which a project is to be located affect the potential for an accidental release of a hazardous material to cause public health impacts. These include:

- local meteorology;
- terrain characteristics; and
- location of population centers and sensitive receptors relative to the project.

METEOROLOGICAL CONDITIONS

Meteorological conditions, including wind speed, wind direction and air temperature, affect the extent to which accidentally released hazardous materials would be dispersed into the air and the direction in which they would be transported. This affects the potential magnitude and extent of public exposure to such materials, as well as the associated health risks. When wind speeds are low and the atmosphere is stable, dispersion is severely reduced and can lead to increased localized public exposure.

Recorded wind speeds and ambient air temperatures are described in the Air Quality section (8.1) and Appendix 8.1 of the Application for Certification (AFC) (VSE 2005b). Staff agrees with the applicant that use of F stability (stagnant air, very little mixing), wind speed of 1.5 meters per second, and a temperature of 97 °F is appropriate for conducting the Offsite Consequence Analysis. Staff believes these represent a reasonably conservative scenario and thus reflects worst case atmospheric conditions.

TERRAIN CHARACTERISTICS

The location of elevated terrain is often an important factor to be considered in assessing potential exposure. An emission plume resulting from an accidental release may impact high elevations before impacting lower elevations. The site topography is mostly flat, with an average elevation of about 1450 feet above sea level. Terrain in the project vicinity is level to the northwest and southeast, and rises slightly to the northeast and southwest at distances between approximately one-half and one mile from the site.

LOCATION OF EXPOSED POPULATIONS AND SENSITIVE RECEPTORS

The general population includes many sensitive subgroups that may be at greater risk from exposure to emitted pollutants. These sensitive subgroups include the very young, the elderly, and those with existing illnesses. In addition, the location of the population in the area surrounding a project site may have a large bearing on health risk. Table 8.9-1 of the AFC provides a list of sensitive receptors within one mile of the project site. There are 23 schools and day care facilities, one hospital, and one senior care facility within a 6-mile radius of the site, the nearest one being an elementary school located about 0.52-mile to the south (VSE 2005b, §8.5.1.1).

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

METHOD FOR DETERMINING SIGNIFICANCE

Staff reviewed and assessed the potential for the transportation, handling, and use of hazardous materials to impact the surrounding community. All chemicals and natural gas were evaluated. Staff's analysis addresses potential impacts on all members of the population including the young, the elderly, and people with existing medical conditions

that may make them more sensitive to the adverse effects of hazardous materials. In order to accomplish this goal, staff utilizes the most current acceptable public health exposure levels (both acute and chronic) set to protect the public from the effects of an accidental chemical release.

In order to assess the potential for released hazardous materials to travel off-site and affect the public, staff analyzed several aspects of the proposed use of these materials at the facility. Staff recognizes that some hazardous materials must be used at power plants. Therefore, staff conducted its analysis by examining the choice and amount of chemicals to be used, the manner in which the applicant will use the chemicals, the manner it will be transported to the facility and transferred to facility storage tanks, and the way the applicant plans to store the materials on-site.

Staff reviewed the applicant's proposed engineering controls and administrative controls concerning hazardous materials usage. Engineering controls are those physical or mechanical systems, such as storage tanks or automatic shut-off valves, that can prevent a spill of hazardous material from occurring or which can limit the spill to a small amount or confine it to a small area. Administrative controls are those rules and procedures that workers at the facility must follow that will help to prevent accidents or keep them small if they do occur. Both engineering and administrative controls can act as methods of prevention or as methods of response and minimization. In both cases, the goal is to prevent a spill from moving off-site and causing harm to the public.

Staff reviewed and evaluated the applicant's proposed use of hazardous materials as described by the applicant (VSE 2005b, Section 8.5). Staff's assessment followed the five steps listed below:

- Step 1: Staff reviewed the chemicals and the amounts proposed for on-site use as listed in Table 8.5-2 of the AFC and determined the need and appropriateness of their use.
- Step 2: Those chemicals, proposed for use in small amounts or whose physical state is such that there is virtually no chance that a spill would migrate off the site and impact the public, were removed from further assessment.
- Step 3: Measures proposed by the applicant to prevent spills were reviewed and evaluated. These included engineering controls such as automatic shut-off valves and different size transfer-hose couplings and administrative controls such as worker training and safety management programs.
- Step 4: Measures proposed by the applicant to respond to accidents were reviewed and evaluated. These measures also included engineering controls such as catchment basins and methods to keep vapors from spreading and administrative controls such as training emergency response crews.
- Step 5: Staff analyzed the theoretical impacts on the public of a worst-case spill of hazardous materials even with the mitigation measures proposed by the applicant. When mitigation methods proposed by the applicant are sufficient, no further mitigation is recommended. If the proposed mitigation is not sufficient to reduce the potential for adverse impacts to an insignificant level, staff will propose additional prevention and response controls until the potential for causing harm to the public is

reduced to an insignificant level. It is only at this point that staff can recommend that the facility be allowed to use hazardous materials.

DIRECT/INDIRECT IMPACTS AND MITIGATION

Small Quantity Hazardous Materials

In conducting the analysis, staff determined in Steps 1 and 2 that some materials, although present at the proposed facility, pose a minimal potential for off-site impacts as they will be stored in a solid form or in smaller quantities, have low mobility, or have low levels of toxicity. These hazardous materials, which were eliminated from further consideration, are discussed briefly below.

During the construction phase of the project, the only hazardous materials proposed for use include paint, paint thinner, cleaners, solvents, sealants, gasoline, diesel fuel, motor oil, hydraulic fluid, lubricants, and welding flux. Any impact of spills or other releases of these materials will be limited to the site due to the small quantities involved, the infrequent use and hence reduced chances of release, and/or the temporary containment berms used by contractors. Petroleum hydrocarbon-based motor fuels, mineral oil, lube oil, and diesel fuel are all of very low volatility and represent limited off-site hazard even in larger quantities.

During operations, hazardous chemicals such as hydraulic and lubricating oils and other various chemicals (see Table 8.5 – 1 for a list of all chemicals proposed to be used and stored at SVEP), would be used and stored in relatively small amounts and represent limited off-site hazard due to their small quantities, low volatility, and/or low toxicity.

Sodium hypochlorite, sodium hypobromite, sodium bromide, sodium bisulfite, sodium hydroxide, sulfur hexaflouride, and sulfuric acid will be stored on-site but do not pose a risk of off-site impacts because the volumes stored will be less than 2000 gallons, they have relatively low vapor pressures, and spills would be confined to the site. Because of concern at another proposed energy facility in 1995, staff conducted a quantitative assessment of the potential for impact associated with sulfuric acid use, storage, and transportation. Staff determined no hazard would be posed to the public due to the extremely low volatility of this aqueous solution of sulfuric acid. However, in order to protect against risk of fire, staff proposes Condition of Certification **HAZ-5** which will require that no combustible or flammable material is stored within 50 feet of the sulfuric acid tank.

After removing from consideration those chemicals that pose no risk of off-site impact in Steps 1 and 2, staff continued with Steps 3, 4, and 5 to review the remaining hazardous materials: natural gas and aqueous ammonia.

Large Quantity Hazardous Materials

Natural Gas

Natural gas poses a fire and/or possible explosion risk as a result of its flammability. Natural gas is composed of mostly methane, but also contains ethane, propane,

nitrogen, butane, isobutene, and isopentane. It is colorless, odorless, and tasteless and is lighter than air. Natural gas can cause asphyxiation when methane is ninety percent in concentration. Methane is flammable when mixed in air at concentrations of 5 to 14 percent, which is also the detonation range. Natural gas, therefore, poses a risk of fire and/or possible explosion if a release were to occur under certain specific conditions. However, it should be noted that, due to its tendency to disperse rapidly (Lees 1998), natural gas is less likely to cause explosions than many other fuel gases, such as propane or liquefied petroleum gas, but it can explode under certain conditions (as demonstrated by the recent natural gas detonation in Belgium in July of 2004).

While natural gas will be used in significant quantities, it will not be stored on-site. The risk of a fire and/or explosion on-site can be reduced to insignificant levels through adherence to applicable codes and development and implementation of effective safety management practices. The National Fire Protection Association (NFPA 85A) requires 1) the use of double block and bleed valves for gas shut-off; and 2) automated combustion controls. These measures will significantly reduce the likelihood of an explosion in gas-fired equipment. Additionally, start-up procedures would require air purging of the gas turbines prior to start-up, thus precluding the presence of an explosive mixture. The safety management plan proposed by the applicant would address the handling and use of natural gas and significantly reduce the potential for equipment failure due to improper maintenance or human error (VSE 2005b). The proposed facility will not require the installation of any new off-site gas pipeline.

Aqueous Ammonia

Aqueous ammonia will be used in controlling the emission of oxides of nitrogen (NO_x) from the combustion of natural gas in the facility. The accidental release of aqueous ammonia without proper mitigation can result in significant down-wind concentrations of ammonia gas. One 16,000-gallon capacity above-ground storage tank will be used to store the 19 percent aqueous ammonia (VSE 2005b Section 8.5.2.3).

Based on staff's analysis, as described above, aqueous ammonia is the only hazardous material that may pose a risk of off-site impacts. The use of aqueous ammonia can result in the formation and release of toxic gases in the event of a spill even without interaction with other chemicals. This is a result of its moderate vapor pressure and the large amounts of aqueous ammonia that will be used and stored on-site. However, as with sodium hypochlorite solution, the use of aqueous ammonia instead of the much more hazardous anhydrous ammonia (i.e. ammonia that is not diluted with water) poses far less risk.

To assess the potential impacts associated with an accidental release of aqueous ammonia, staff uses the four "bench mark" exposure levels of ammonia gas occurring off-site. These include: 1) the lowest concentration posing a risk of lethality, 2,000 ppm; 2) the Immediately Dangerous to Life and Health (IDLH) level of 300 ppm; 3) the Emergency Response Planning Guideline (ERPG) level 2 of 200 ppm, which is also the RMP level 1 criterion used by EPA and California; and 4) the level considered by the Energy Commission staff to be without serious adverse effects on the public for a one-time exposure of 75 ppm. If the potential exposure associated with a potential release exceeds 75 ppm at any public receptor, staff will presume that such release may pose a

risk of significant impact. However, staff will also assess the probability of occurrence of the release and/or the nature of the potentially exposed population in determining whether, the likelihood and extent of potential exposure are sufficient to support a finding of potentially significant impact. A detailed discussion of the exposure criteria considered by staff and their applicability to different populations and exposure-specific conditions is provided in **Hazardous Materials Appendices A** and **B**.

Section 8.5.2.4.2 and Appendix 8.5A of the AFC (VSE 2005b) describe the modeling parameters to be used for the worst case accidental releases of aqueous ammonia in the applicant's Offsite Consequence Analysis (OCA). This modeling will use a numerical air dispersion model for a worst-case release associated with a failure of the storage tank into the containment area and subsequent flow into the planned subsurface vault.

The Final Staff Assessment will include an analysis of the applicant's aqueous ammonia modeling calculations and conclusions and if necessary will conduct its own modeling to determine whether the proposed storage and transfer of aqueous ammonia, poses any potential to cause a significant impact.

Mitigation

The potential for accidents resulting in the release of hazardous materials is greatly reduced by the implementation of a safety management program, which includes the use of both engineering and administrative controls. Elements of facility controls and the safety management plan are summarized below.

Engineering Controls

Engineering controls help to prevent accidents and releases (spills) from moving off-site and impacting the community by incorporating engineering safety design criteria into the design of the facility. The engineered safety features proposed by the applicant for use at this facility include:

- construction of secondary containment areas surrounding each of the hazardous materials storage areas designed to contain accidental releases that might happen during storage or delivery;
- physical separation of stored chemicals in isolated containment areas separated by a noncombustible partition in order to prevent accidental mixing of incompatible materials which may result in the evolution and release of toxic gases or fumes;
- installation of an automatic sprinkler systems and an exhaust system for indoor hazardous materials storage areas;
- construction of a secondary containment area surrounding the aqueous ammonia storage tank capable of holding the full contents of the tank and accumulated precipitation in an underground vault.
- construction of a bermed containment area surrounding the truck unloading area with a sloped floor draining into the spill vault under the storage tank.
- process protective systems including continuous tank level monitors, temperature and pressure monitors, alarms, check valves, and emergency block valves; and

- ammonia censors in the vicinity of the ammonia storage tank that would activate alarms and flashing lights to alert SVEP employees that a spill has occurred.

Administrative Controls

Administrative controls also help prevent accidents and releases (spills) from moving off-site and impacting the community by establishing worker training programs, process safety management programs and by complying with all applicable health and safety laws, ordinances and standards.

A worker health and safety program will be prepared by the applicant and will include (but is not limited to) the following elements (see **WORKER SAFETY/FIRE PROTECTION** section in this PSA for specific regulatory requirements):

- worker training regarding chemical hazards, health and safety issues, and hazard communication;
- procedures to ensure the proper use of personal protective equipment;
- safety operating procedures for operation and maintenance of systems utilizing hazardous materials;
- fire safety and prevention; and
- emergency response actions including facility evacuation, hazardous material spill cleanup, and fire prevention.

At the facility, the project owner will be required to designate an individual who has the responsibility and authority to ensure a safe and healthful workplace. The project health and safety official will oversee the health and safety program and will have the authority to halt any action or modify any work practice in order to protect the workers, facility, and the surrounding community in the event that the health and safety program is violated.

The applicant will also prepare a Risk Management Plan (RMP) for aqueous ammonia as required by CalARP regulations and Condition of Certification **HAZ-2** that would include a program for prevention of accidental releases and responding to an accidental release of aqueous ammonia. A Hazardous Materials Business Plan (HMBP) will also be prepared by the applicant that would incorporate state requirements for the handling of hazardous materials (VSE 2005b Section 8.5.4.2).

On-site Spill Response

In order to address the issue of spill response, the facility will prepare and implement an Emergency Response Plan which includes information on hazardous materials contingency and emergency response procedures, spill containment and prevention systems, personnel training, spill notification, on-site spill containment, prevention equipment and capabilities, etc. Emergency procedures will be established which include evacuation, spill cleanup, hazard prevention, and emergency response.

The Riverside County Hazardous Materials Support Unit stationed at Riverside County Fire Station No. 34 is located at 32655 Haddock Street, Winchester, California,

approximately 5.8 miles from the project site and considered first responder for HazMat incidents.

Additionally, designated plant personnel will be assigned to a hazmat response team and receive first responder training, hazmat technical training, and training in mitigation and control measures (VSE 2005b Section 8.5.4.2).

Staff concludes that the hazardous materials response time is acceptable and that the Riverside County Hazardous Material Support Unit is adequately trained and equipped to respond in a timely manner.

Transportation of Hazardous Materials

Hazardous materials, including aqueous ammonia, sulfuric acid, and cleaning chemicals, will be transported to the facility via tanker truck. While many types of hazardous materials will be transported to the site, staff believes that transport of aqueous ammonia poses the predominant risk associated with hazardous materials transport.

Staff reviewed the applicant's proposed transportation route for hazardous materials delivery (from Interstate-215, along Ethanac Road, to Matthews Road, to the Project site), and agrees that this is a suitable route. The applicant stated that the exact route will be subject to permitting approval by the California Highway Patrol before delivery of aqueous ammonia (VSE 2005b, Section 8.5.4.2.4).

Ammonia can be released during a transportation accident and the extent of impact in the event of such a release would depend on the location of the accident and on the rate of dispersion of ammonia vapor from the surface of the aqueous ammonia pool. The likelihood of an accidental release during transport is dependent on three factors:

- the skill of the tanker truck driver,
- the type of vehicle used for transport, and
- accident rates.

To address this concern, staff evaluated the risk of an accidental transportation release in the project area. Staff's analysis focused on the project area after the delivery vehicle leaves the main highway (Interstate-215). Staff believes that it is appropriate to rely on the extensive regulatory program that applies to shipment of hazardous materials on California Highways to ensure safe handling in general transportation (see The Federal Hazardous Materials Transportation Law 49 USC §5101 et seq, The US Department of Transportation Regulations 49 CFR Subpart H, §172-700, and California DMV Regulations on Hazardous Cargo). These regulations also address the issue of driver competence. Suppliers of ammonia to the facility are required to comply with all all applicable hazardous materials transportation LORS. See AFC section 8.12 for additional information on regulations governing the transportation of hazardous materials.

To address the issue of tank truck safety, aqueous ammonia will be delivered to the proposed facility in Department of Transportation (DOT) certified vehicles with design

capacity of 6,500 gallons. These vehicles will be designed to DOT Code MC-306 or MC-307. These are high integrity vehicles designed for hauling of caustic materials such as aqueous ammonia. Staff has, therefore, proposed Condition of Certification **HAZ-6** to ensure that regardless of which vendor supplies the aqueous ammonia, delivery will be made in a tanker, which meets or exceeds the specifications described by these regulations.

To address the issue of accident rates, staff reviewed the technical and scientific literature on hazardous materials transportation (including tanker trucks) accident rates in the United States and California. Staff relied on six references and three federal government databases to assess the risks of a hazardous materials transportation accident.

Staff used the data from the Davies and Lees (1992) article which references the 1990 Harwood et al. study, to determine that the frequency of release for transportation of hazardous materials in the U.S. is between 0.06 and 0.19 releases per million miles traveled on well designed roads and highways. The maximum usage of aqueous ammonia each year of operation of the proposed SVEP will require about 104 tanker truck deliveries of aqueous ammonia per year each delivering about 6,500 gallons. Each delivery will travel approximately 3.1 miles from Interstate-215 to the facility along Ethanac Road, to Matthews Road, to the project site.

This would result in a maximum of approximately 322 miles of delivery tanker truck travel in the project area per year (with a full load). Staff believes that the risk of a hazmat related impact on the public over this distance is insignificant. Data from the U.S. DOT show that the actual risk of a fatality over the past five years from all modes of hazardous material transportation (rail, air, boat, and truck) is approximately 0.1 in one million.

In addition, staff used a Transportation Risk Assessment model developed by staff in order to calculate the risk of an upset associated with aqueous ammonia delivery from the freeway to the facility. Results show the risk of a significant spill to be 0.42 in one million for one trip and a risk of 45 in a million per year for 104 deliveries. This risk was calculated using accident rates on various types of roads (urban, one lane and two-lane) with distances traveled on each type of road computed separately. Although it is an extremely conservative model, the results show the risk of a transportation accident to be insignificant.

Staff therefore believes the risk of exposure to significant concentrations of aqueous ammonia during transportation to the facility are insignificant because of the remote possibility of accidental release of a sufficient quantity to present a danger to the public combined with the already diluted concentration of the aqueous ammonia being transported. The transportation of similar volumes of hazardous materials on the nation’s highways is not unique nor an infrequent occurrence. Staff’s analysis of the transportation of aqueous ammonia to the proposed facility (along with data from the U.S. DOT) demonstrates that the risk of accident and exposure is less than significant.

Based on the environmental mobility, toxicity, quantities present at the site and frequency of delivery, it is staff’s opinion that aqueous ammonia poses the predominate

risk associated with hazardous materials transportation and use at the proposed facility. Staff concludes that the risk associated with transportation of other hazardous materials to the proposed facility does not significantly increase the risk of impact beyond that associated with ammonia transportation.

Seismic Issues

The possibility exists that an earthquake would cause the failure of a hazardous materials storage tank. A quake could also cause the failure of the secondary containment system (berms and dikes) as well as electrically controlled valves and pumps. The failure of all these preventive control measures might then result in a vapor cloud of hazardous materials moving off-site and impacting the residents and workers in the surrounding community. The effects of the Loma Prieta earthquake of 1989, the Northridge earthquake of 1994, and the earthquake in Kobe, Japan, in January 1995, heighten the concern regarding earthquake safety.

Information obtained after the January 1994 Northridge earthquake showed that some damage was caused to several large storage tanks and smaller tanks associated with the water treatment system of a cogeneration facility. Those tanks with the greatest damage, including seam leakage, were older tanks, while the newer tanks sustained displacements and failures of attached lines. Therefore, staff conducted an analysis of the codes and standards, which should be followed in adequately designing and building storage tanks and containment areas to withstand a large earthquake. Staff also reviewed the impacts of the February 2001 Nisqually earthquake near Olympia, Washington, a state with similar seismic design codes as California. No hazardous materials storage tanks were impacted by this quake. Referring to the sections on **Geologic Resources and Hazards** and **Facility Design** in the AFC, staff notes that the proposed facility will be designed and constructed to the applicable standards of the 2001 California Building Code and the 1997 Uniform Building Code. The site is within Seismic Zone 4 (VSE 2005b Section 8.4.1). Therefore, on the basis of what occurred in Northridge with older tanks and the lack of failures during the Nisqually earthquake with newer tanks, staff determined that tank failures during seismic events are not probable and do not represent a significant risk to the public.

Site Security

This facility proposes to use hazardous materials that have been identified by the US EPA as materials where special site security measures should be developed and implemented to ensure that unauthorized access is prevented. The EPA published a Chemical Accident Prevention Alert regarding Site Security (EPA 2000a), the US Department of Justice published a special report on Chemical Facility Vulnerability Assessment Methodology (US DOJ 2002), the North American Electric Reliability Council published Security Guidelines for the Electricity Sector in 2002 (NERC 2002), and the U.S. Department of Energy published a draft Vulnerability Assessment methodology for Electric Power Infrastructure in 2002 (DOE 2002). The energy generation sector is one of the 14 areas of Critical Infrastructure listed by the U.S. Department of Homeland Security.

The applicant has stated that a security plan will be prepared for the proposed facility, and will include a description of perimeter security measures, and procedures for

evacuating, notifying authorities of a security breach, conducting site personnel background checks, and site access. Perimeter security measures utilized for this facility may include security guards, security alarms, breach detectors, motion detectors, and video or camera systems (VSE 2005b Section 8.5.4.2.5). In order to ensure that this facility or a shipment of hazardous material is not the target of unauthorized access, staff's proposed Conditions of Certification **HAZ-8** and **HAZ-9** address both a Construction Security Plan and an Operations Security Plan. These plans would require the implementation of Site Security measures consistent with the above-referenced documents and CEC guidelines.

The goal of these conditions of certification is to provide for the minimum level of security needed to protect California's electrical infrastructure from malicious mischief, vandalism, or domestic/foreign terrorist attacks. The level of security needed for this power plant is dependent upon the threat imposed, the likelihood of an adversary attack, the likelihood of adversary success in causing a catastrophic event, and the severity of consequences of that event. The results of the off-site consequence analysis prepared as part of the Risk Management Plan (RMP) will be used, in part, to determine the severity of consequences of a catastrophic event. In order to determine the level of security, the CEC staff will provide guidance in the form of a vulnerability assessment (VA) decision matrix modeled after the U.S. Department of Justice Chemical Vulnerability Assessment Methodology (July 2002), the NERC 2002 guidelines, and the U.S. Department of Energy VAM-CF model. **HAZ-8 and HAZ-9** require basic site security measures locations in order to protect the infrastructure and electrical power generation within the state.

These measures will include perimeter fencing and detectors, possibly guards, alarms, site access procedures for employees and vendors, site personnel background checks, and law enforcement contact in the event of security breach. Site access for vendors shall be strictly controlled. Consistent with current state and federal regulations governing the transport of hazardous materials, hazardous materials vendors will have to maintain their transport vehicle fleet and employ only drivers properly licensed and trained. The project owner will be required, through the use of contractual language with vendors, to ensure that vendors supplying hazardous materials strictly adhere to the U.S. Department of Transportation (DOT) requirements for Hazardous Materials vendors to prepare and implement security plans as per 49 CFR 172.800 and to ensure that all hazardous materials drivers are in compliance with personnel background security checks as per 49 CFR Part 1572, Subparts A and B. The CPM may authorize modifications to these measures, or may require additional measures depending on circumstances unique to the facility, and in response to site operator and/or industry-related security concerns.

CUMULATIVE IMPACTS AND MITIGATION

Staff reviewed the potential for the operation of the SVEP combined with existing facilities to result in cumulative impacts on the population within the area. Staff determined that the chemical with the most potential to cause a cumulative impact is aqueous ammonia. However, it is expected that with the mitigations proposed by applicant and staff's suggested Conditions of Certification, there will be very little possibility for a significant off-site air-borne concentration of ammonia gas. The low

probability and localized nature of impact preclude any cumulative impact on the surrounding population from this facility in combination with other facilities. Should an aqueous ammonia release occur simultaneously at the SVEP and the Inland Empire Energy Center, located approximately 2700 feet east-northeast of the project, the Conditions of Certification for the projects in conjunction with the physical characteristics and containment design elements discussed will adequately contain impacts to the respective sites and not cause a combined impact. Because the impact of an ammonia release will in all likelihood be confined to the facility property it is expected that analysis of off-site impacts will demonstrate that the public including minority or low-income communities will not be significantly impacted by a release at the SVEP site, or a simultaneous release at the nearby Inland Empire Energy Center.

The applicant will develop and implement a hazardous materials handling program for the SVEP project independent of any other projects considered for potential cumulative impacts. Staff believes that the facility, as proposed by the applicant and with the additional mitigation measures proposed by staff, poses a minimal risk of accidental release that could result in offsite impacts. It is unlikely that an accidental release that has very low probability of occurrence (about one in one million per year) would independently occur at the SVEP site and another facility at the same time. Therefore, staff concludes that the facility would not contribute to a significant cumulative impact.

Staff has considered the minority populations (as identified in **Socioeconomics Figure 1**) and low-income populations in its impact analysis. There are no significant adverse hazardous materials impacts and therefore, no environmental justice issues.

COMPLIANCE WITH LORS

Staff concludes that construction and operation of the SVEP would be in compliance with all applicable LORS regarding long-term and short-term project impacts in the area of Hazardous Materials Management.

CONCLUSIONS

Staff's evaluation of the proposed project (with proposed mitigation measures) indicates that hazardous materials use will pose no significant impacts on the public. Staff's analysis also shows that there will be neither significant cumulative impact nor any significant disproportional impact on minority populations in the vicinity of the project. With adoption of the proposed Conditions of Certification, the proposed project will comply with all applicable LORS. In response to Health and Safety Code, section 25531 et seq., the applicant will be required to develop an RMP. To insure adequacy of the RMP, staff's proposed Conditions of Certification require that the RMP be submitted for concurrent review by US EPA and Energy Commission staff. In addition, staff's proposed Conditions of Certification require Riverside County Environmental Health Department's and staff's review and approval of the RMP prior to delivery of any hazardous materials to the facility. Other proposed Conditions of Certification address the issue of the transportation, storage, and use of aqueous ammonia.

Staff recommends the Energy Commission impose the proposed Conditions of Certification, presented herein, to ensure that the project is designed, constructed and operated to comply with applicable LORS and to protect the public from significant risk of exposure to an accidental ammonia release. If all mitigation proposed by the applicant and by staff are required, the use, storage, and transportation of hazardous materials will not present a significant risk to the public.

Staff proposes seven Conditions of Certification mentioned throughout the text (above) and listed below. **HAZ-1** ensures that no hazardous material would be used at the facility except those listed in the AFC unless there is prior approval by the City and County and the Energy Commission Compliance Project Manager (CPM). **HAZ-2** requires that a RMP be prepared and submitted prior to the delivery of aqueous ammonia.

Staff believes that an accidental release of aqueous ammonia during transfer from the delivery tanker to the storage tank is the most probable accident scenario, and therefore proposes a condition (**HAZ-3**) requiring development of a safety management plan for the delivery of aqueous ammonia. The development of a Safety Management Plan addressing delivery of ammonia will further reduce the risk of any accidental release not addressed by the proposed spill prevention and mitigation measures and the required RMP. **HAZ-4** requires that the aqueous ammonia storage tank be designed to comply with applicable LORS, **HAZ-5** addresses the storage of sulfuric acid, and the transportation of hazardous materials is addressed in **HAZ-6,** & **7**. Site security during both the construction and operations phases is addressed in **HAZ-8** and **HAZ-9**.

PROPOSED CONDITIONS OF CERTIFICATION

HAZ-1 The project owner shall not use any hazardous materials not listed in Appendix C, below, or in greater quantities than those identified by chemical name in Appendix C, below, unless approved in advance by the Compliance Project Manager (CPM).

Verification: The project owner shall provide to the CPM, in the Annual Compliance Report, a list of hazardous materials contained at the facility.

HAZ-2 The project owner shall concurrently provide a Business Plan and a Risk Management Plan (RMP) to the Riverside County Environmental Health Department – the Certified Unified Program Authority (CUPA), the Riverside County Fire Department, Health Hazardous Materials Division and the CPM for review at the time the RMP is first submitted to the U.S. Environmental Protection Agency (EPA). After receiving comments from the CUPA, the EPA, and the CPM, the project owner shall reflect all recommendations in the final documents. Copies of the final Business Plan and RMP shall then be provided to the CUPA and EPA for information and to the CPM for approval.

Verification: At least 60 days prior to receiving any hazardous material on the site for commissioning or operations, the project owner shall provide a copy of a final Business Plan to the CPM for approval. At least sixty (60) days prior to delivery of aqueous

ammonia to the site, the project owner shall provide the final RMP to the CUPA for information and to the CPM for approval.

HAZ-3 The project owner shall develop and implement a Safety Management Plan for delivery of aqueous ammonia. The plan shall include procedures, protective equipment requirements, training and a checklist. It shall also include a section describing all measures to be implemented to prevent mixing of aqueous ammonia with incompatible hazardous materials.

Verification: At least sixty (60) days prior to the delivery of aqueous ammonia to the facility, the project owner shall provide a safety management plan as described above to the CPM for review and approval.

HAZ-4 The aqueous ammonia storage facility shall be designed to either the ASME Pressure Vessel Code and ANSI K61.6 or to API 620. In either case, the storage tank shall be protected by a secondary containment basin capable of holding 125 percent of the storage volume or the storage volume plus the volume associated with 24 hours of rain assuming the 25-year storm. The final design drawings and specifications for the ammonia storage tank and secondary containment basins shall be submitted to the CPM.

Verification: At least sixty (60) days prior to delivery of aqueous ammonia to the facility, the project owner shall submit final design drawings and specifications for the ammonia storage tank and secondary containment basin to the CPM for review and approval.

HAZ-5 The project owner shall ensure that no flammable material is stored within 50 feet of the sulfuric acid tank.

Verification: At least sixty (60) days prior to receipt of sulfuric acid on-site, the project owner shall provide copies of the facility design drawings showing the location of the sulfuric acid storage tank and the location of any tanks, drums, or piping containing any flammable materials.

HAZ-6 The project owner shall require all vendors delivering aqueous ammonia to the site to use only tanker truck transport vehicles which meet or exceed the specifications of DOT Code MC-307.

Verification: At least sixty (60) days prior to receipt of aqueous ammonia on site, the project owner shall submit copies of the notification letter to supply vendors indicating the transport vehicle specifications to the CPM for review and approval.

HAZ-7 The project owner shall require all vendors delivering any hazardous material to the site to use only the route approved by the CPM (from Interstate-215 to the facility along Ethanac Road, to Matthews Road, to the Project site). The project owner shall obtain approval of the CPM if an alternate route is desired.

Verification: At least sixty (60) days prior to receipt of any hazardous materials on site, the project owner shall submit copies of the required transportation route limitation direction to the CPM for review and approval.

HAZ-8 At least 30 days prior to commencing construction, a site-specific Construction Site Security Plan for the construction phase shall be prepared and made available to the CPM for review and approval. The Construction Security Plan shall include the following:

1. Perimeter security consisting of fencing enclosing the construction area;
2. Security guards;
3. Site access control consisting of a check-in procedure or tag system for construction personnel and visitors;
4. Written standard procedures for employees, contractors and vendors when encountering suspicious objects or packages on-site or off-site;
5. Protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency; and
6. Evacuation procedures.

Verification: At least thirty (30) days prior to commencing construction, the project owner shall notify the CPM that a site-specific Construction Security Plan is available for review and approval.

HAZ-9 In order to determine the level of security appropriate for this power plant, the project owner shall prepare a Vulnerability Assessment and submit that assessment as part of the Operations Security Plan to the CPM for review and approval. The Vulnerability Assessment shall be prepared according to guidelines issued by the North American Electrical Reliability Council (NERC 2002), the U.S. Department of Energy (DOE 2002), and the U.S. Department of Justice Chemical Vulnerability Assessment Methodology (July 2002). Physical site security shall be consistent with the guidelines issued by the NERC (Version 1.0, June 14, 2002) and the DOE (2002) and will also be based, in part, on the use and storage of certain quantities of regulated substances (acutely hazardous materials) as described by the California Accidental Release Prevention Program (Cal-ARP, Health and Safety Code section 25531).

The project owner shall also prepare a site-specific Security Plan for the operational phase and shall be made available to the CPM for review and approval. The project owner shall implement site security measures addressing physical site security and hazardous materials storage. The level of security to be implemented will be determined by the results of the Vulnerability Assessment but in no case shall the level of security be less than that described as below (as per NERC 2002).

The Operation Security Plan shall include the following:

1. Permanent full perimeter fence or wall, at least 8 feet high;
2. Main entrance security gate, either hand operable or motorized;
3. Evacuation procedures;

4. Protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency;
5. Written standard procedures for employees, contractors and vendors when encountering suspicious objects or packages on-site or off-site;
6. Site personnel background checks, including employee and routine on-site contractors [Site personnel background checks are limited to ascertaining that the employee's claims of identity and employment history are accurate. All site personnel background checks shall be consistent with state and federal law regarding security and privacy.];
7. Site access controls for employees, contractors, vendors, and visitors;
8. Requirements for Hazardous Materials vendors to prepare and implement security plans as per 49 CFR 172.800 and to ensure that all hazardous materials drivers are in compliance with personnel background security checks as per 49 CFR Part 1572, Subparts A and B;
9. Closed Circuit TV (CCTV) monitoring system, recordable, and viewable in the power plant control room and security station (if separate from the control room) capable of viewing, at a minimum, the main entrance gate and the ammonia storage tank; and
10. Additional measures to ensure adequate perimeter security consisting of either:

    A. Security guards present 24 hours per day, 7 days per week.
    or

    B. Power plant personnel on-site 24 hours per day, 7 days per week and **all** of the following:

    1. The CCTV monitoring system required in number 9 above shall include cameras that are able to pan, tilt, and zoom (PTZ), have low-light capability, are recordable, and are able to view 100 percent of the perimeter fence, the ammonia storage tank, the outside entrance to the control room, and the front gate from a monitor in the power plant control room; **and**
    2. Perimeter breach detectors **or** on-site motion detectors.

The Project Owner shall fully implement the security plans and obtain CPM approval of any substantive modifications to the security plans. The CPM may authorize modifications to these measures, or may require additional measures, such as protective barriers for critical power pant components (e.g., transformers, gas lines, compressors, etc.) depending on circumstances unique to the facility or in response to industry-related standards, security concerns, or additional guidance provided by the U.S. Department of Homeland Security, the U.S. Department of Energy, or the North American Electrical Reliability Council.

Verification: At least 30 days prior to the initial receipt of hazardous materials on-site, the project owner shall notify the CPM that a site-specific Vulnerability Assessment and Operations Site Security Plan are available for review and approval.

REFERENCES

AIChE (American Institute of Chemical Engineers). 1989. Guidelines for Technical Management of Chemical Process Safety, AIChE, New York, NY 10017.

AIChE (American Institute of Chemical Engineers). 1994. Guidelines for Implementing Process Safety Management Systems, AIChE, New York, NY 10017.

API (American Petroleum Institute). 1990. Management of Process Hazards, API Recommended Practice 750; American Petroleum Institute, First Edition, Washington, DC, 1990.

ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.). 2002. Ammonia as a Refrigerant, Position Document dated January 17, 2002.

Baldcock, P.J. (1980). Accidental Releases of Ammonia: An Analysis of Reported Incidents. (Unknown source).

California Code of Regulations Title 19, Accidental Release Prevention Program. November 1998.

Chemical Incident Reports Center Database, U.S. Chemical Safety Board. 2001.

Davies, P.A. and Lees, F.P. 1992. "The Assessment of Major Hazards: The Road Transport Environment for Conveyance of Hazardous Materials in Great Britain." Journal of Hazardous Materials, 32: 41-79.

Environmental Protection Agency (EPA). 1987. Technical Guidance for Hazards Analysis, Environmental Protection Agency, Washington, DC, 1987.

Environmental Protection Agency (EPA). 1988. Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Environmental Protection Agency, Research Triangle Park, NC, August 1988.

Environmental Protection Agency (EPA). 2000a. Chemical Accident Prevention: Site Security. Environmental Protection Agency, Office of Solid Waste and Emergency Response. February 2000.

FEMA (Federal Emergency Management Agency). 1989. Handbook of Chemical Hazard Analysis Procedures, Federal Emergency Management Agency, Washington, DC, 1989.

Harwood, D.W., Viner, J.G., and E.R. Russell. 1990. "Truck Accident Rate Model for Hazardous Materials Routing." Transportation Research Record. 1264: 12-23.

Harwood, D.W., Viner, J.G., and E.R. Russell. 1993. "Procedure for Developing Truck Accident and Release Rates for Hazmat Routing." Journal of Transportation Engineering. 119(2): 189-199.

Lees, F.P. 1998). Loss Prevention in the Process Industries, Vols. I, II and III. Second Edition, Butterworths.

National Response Center Database. US Coast Guard. 2002

National Transportation Safety Board Database. US Department of Transportation. 2001

NFPA (National Fire Protection Association). 1987. NFPA 85A, Prevention of Furnace Explosions in Fuel Oil and Natural Gas Fired Single Burner Boiler Furnaces, National Fire Protection Association, Batterymarch Park, Quincy, MA, 1987.

North American Electric Reliability Council (NAERC) 2002. Security Guidelines for the Electricity Sector, Version 1.0, June 14, 2002.

NRC (National Research Council). 1979. Ammonia. Subcommittee on Ammonia. Committee on Medical and Biologic Effects of Environmental Pollutants. Division of Medical Sciences, Assembly of Life Sciences, National Research Council (NRC), Baltimore, Maryland, University Park Press (NTIS No. PB 278-027).

Perry. 1973. Perry's Chemical Engineers' Handbook, Sixth Edition, McGraw-Hill, USA.

Pet-Armacost, J.J., Sepulveda, J. and M. Sakude. 1999. "Monte Carlo Sensitivity Analysis of Unknown Parameters in Hazardous Materials Transportation Risk Assessment." Risk Analysis. 19(6): 1173-1184.

Rhyne, W.R. 1994. Hazardous Materials Transportation Risk Analysis. Quantitative Approaches for Truck and Train. Chapter 2: Transportation Quantitative Risk Analysis; and Chapter 3: Databases

Uniform Fire Code (UFC) 1997. International Fire Code Institute, Whittier, Ca.

U.S. Department of Energy (US DOE) 2002. Draft Vulnerability Assessment Methodology, Electric Power Infrastructure. Office of Energy Assurance, September 30, 2002.

U.S. Department of Justice (US DOJ) 2002. Special Report: Chemical Facility Vulnerability Assessment Methodology. Office of Justice Programs, Washington, D.C. July 2002.

USOSHA (United States Occupational Safety and Health Administration). 1993. Process Safety Management / Process Safety Management Guidelines For Compliance. U.S. Department of Labor, Washington, DC.

VSE (Valle del Sol Energy, LLC). 2005b – Application for Certification for Sun Valley Energy Project, Volumes 1 and 2. Submitted to the California Energy Commission, December 1, 2005.

Vilchez, J.A., Sevilla, S., Montiel, H. and J. Casal. 1995. "Historical Analysis of Accidents in Chemical Plants and in the Transportation of Hazardous Materials." J. Loss Prev. Process Ind. 8(2): 87-96

Hazardous Materials
Appendix A

Basis for Staff's Use of 75 PPM Ammonia Exposure Criteria

September 2004

BASIS FOR STAFF'S USE OF 75 PPM AMMONIA EXPOSURE CRITERIA

Staff uses a health-based airborne concentration of 75 PPM to evaluate the significance of impacts associated with potential accidental releases of ammonia. While this level is not consistent with the 200-ppm level used by EPA and Cal/EPA in evaluating such releases pursuant to the Federal Risk Management Program and State Accidental Release Program, it is appropriate for use in staff's analysis of the proposed project. The Federal Risk Management Program and the State Accidental Release Program are administrative programs designed to address emergency planning and ensure that appropriate safety management practices and actions are implemented in response to accidental releases. However, the regulations implementing these programs do not provide clear authority to require design changes or other major changes to a proposed facility. The preface to the Emergency Response Planning Guidelines (ERPGs) states that "these values have been derived as planning and emergency response guidelines, **not** exposure guidelines, they do not contain the safety factors normally incorporated into exposure guidelines. Instead they are estimates, by the committee, of the thresholds above which there would be an unacceptable likelihood of observing the defined effects." It is staff's contention that these values apply to healthy adult individuals and are levels that should not be used to evaluate the acceptability of avoidable exposures for the entire population. While these guidelines are useful in decision making in the event that a release has already occurred (for example, prioritizing evacuations), they are not appropriate for and are not binding on discretionary decisions involving proposed facilities where many options for mitigation are feasible. CEQA requires permitting agencies making discretionary decisions to identify and mitigate potentially significant impacts through feasible changes or alternatives to the proposed project.

Staff has chosen to use the National Research Council's 30-minute Short Term Public Emergency Limit (STPEL) for ammonia to determine the potential for significant impact. This limit is designed to apply to accidental unanticipated releases and subsequent public exposure. Exposure at this level should not result in serious effects but would result in "strong odor, lacrimation, and irritation of the upper respiratory tract (nose and throat), but no incapacitation or prevention of self-rescue." It is staff's opinion that exposures to concentrations above these levels pose significant risk of adverse health impacts on sensitive members of the general public. It is also staff's position that these exposure limits are the best available criteria to use in gauging the significance of public exposures associated with potential accidental releases. It is, further, staff's opinion that these limits constitute an appropriate balance between public protection and mitigation of unlikely events, and are useful in focusing mitigation efforts on those release scenarios that pose real potential for serious impacts on the public. Table 1 provides a comparison of the intended use and limitations associated with each of the various criteria that staff considered in arriving at the decision to use the 75-ppm STPEL. **Hazardous Materials Appendix B** provides a summary of adverse effects, which might be expected to occur at various airborne concentrations of ammonia.

Hazardous Materials Appendix A Table-1
Acute Ammonia Exposure Guidelines

Guideline	Responsible Authority	Applicable Exposed Group	Allowable Exposure Level	Allowable* Duration of Exposures	Potential Toxicity at Guideline Level/Intended Purpose of Guideline
IDLH[2]	NIOSH	Workplace standard used to identify appropriate respiratory protection.	300 ppm	30 min.	Exposure above this level requires the use of "highly reliable" respiratory protection and poses the risk of death, serious irreversible injury or impairment of the ability to escape.
IDLH/10[1]	EPA, NIOSH	Work place standard adjusted for general population factor of 10 for variation in sensitivity	30 ppm	30 min.	Protects nearly all segments of general population from irreversible effects
STEL[2]	NIOSH	Adult healthy male workers	35 ppm	15 min. 4 times per 8 hr day	No toxicity, including avoidance of irritation
EEGL[3]	NRC	Adult healthy workers, military personnel	100 ppm	Generally less than 60 min.	Significant irritation but no impact on personnel in performance of emergency work; no irreversible health effects in healthy adults. Emergency conditions one time exposure
STPEL[4]	NRC	Most members of general population	50 ppm 75 ppm 100 ppm	60 min. 30 min. 10 min.	Significant irritation but protects nearly all segments of general population from irreversible acute or late effects. One time accidental exposure
TWA[2]	NIOSH	Adult healthy male workers	25 ppm	8 hr.	No toxicity or irritation on continuous exposure for repeated 8 hr. Work shifts
ERPG-2[5]	AIHA	Applicable only to emergency response planning for the general population (evacuation) (not intended as exposure criteria) (see preface attached)	200 ppm	60 min.	Exposures above this level entail** unacceptable risk of irreversible effects in healthy adult members of the general population (no safety margin)

1) (EPA 1987) 2) (NIOSH 1994) 3) (NRC 1985) 4) (NRC 1972) 5) (AIHA 1989)

* The (NRC 1979), (WHO 1986), and (Henderson and Haggard 1943) all conclude that available data confirm the direct relationship to increases in effect with both increased exposure and increased exposure duration.

** The (NRC 1979) describes a study involving young animals, which suggests greater sensitivity to acute exposure in young animals. The (WHO 1986) warns that the young, elderly, asthmatics, those with bronchitis and those that exercise should also be considered at increased risk based on their demonstrated greater susceptibility to other non-specific irritants.

References for Hazardous Materials Appendix A, Table 1

AIHA. 1989. American Industrial Hygienists Association, Emergency Response Planning Guideline, Ammonia, (and Preface) AIHA, Akron, OH.

EPA. 1987. U.S. Environmental Protection Agency, Technical Guidance for Hazards Analysis, EPA, Washington, D.C.

NRC. 1985. National Research Council, Criteria and Methods for Preparing Emergency Exposure Guidance Levels (EEGL), short-term Public Emergency Guidance Level (SPEGL), and Continuous Exposure Guidance Level (CEGL) Documents, NRC, Washington, D.C.

NRC. 1972. Guideline for short-term Exposure of The Public To Air Pollutants. IV. Guide for Ammonia, NRC, Washington, D.C.

NIOSH. 1994. National Institute of Occupational Safety and Health, Pocket Guide to Chemical Hazards, U.S. Department of Health and Human Services, Washington D.C., Publication numbers 94-116.

WHO. 1986. World health Organization, Environmental Health Criteria 54, Ammonia, WHO, Geneva, Switzerland.

Abbreviations for Hazardous Materials Appendix A, Table 1

ACGIH, American Conference of Governmental and Industrial Hygienists
AIHA, American Industrial Hygienists Association
EEGL, Emergency Exposure Guidance Level
EPA, Environmental Protection Agency
ERPG, Emergency Response Planning Guidelines
IDLH, Immediately Dangerous to Life and Health Level
NIOSH, National Institute of Occupational Safety and Health
NRC, National Research Council
STEL, Short Term Exposure Limit
STPEL, Short Term Public Emergency Limit
TLV, Threshold Limit Value
WHO, World Health Organization

Hazardous Materials
Appendix B

Summary of Adverse Health Effects of Ammonia

September 2004

SUMMARY OF ADVERSE HEALTH EFFECTS OF AMMONIA[1]

638 PPM

WITHIN SECONDS:

- Significant adverse health effects;
- Might interfere with capability to self rescue;
- Reversible effects such as severe eye, nose and throat irritation.

AFTER 30 MINUTES:

- Persistent nose and throat irritation even after exposure stopped;
- irreversible or long-lasting effects possible: lung injury;
- Sensitive people such as the elderly, infants, and those with breathing problems (asthma) experience difficulty in breathing;
- Asthmatics will experience a worsening of their condition and a decrease in breathing ability, which might impair their ability to move out of area.

266 PPM

WITHIN SECONDS:

- Adverse health effects;
- Very strong odor of ammonia;
- Reversible moderate eye, nose and throat irritation.

AFTER 30 MINUTES:

- Some decrease in breathing ability but doubtful that any effect would persist after exposure stopped;
- Sensitive persons: experience difficulty in breathing;
- Asthmatics: may have a worsening condition and decreased breathing ability, which might impair their ability to move out of the area.

64 PPM

WITHIN SECONDS:

- Most people would notice a strong odor;
- Tearing of the eyes would occur;
- Odor would be very noticeable and uncomfortable.
- Sensitive people could experience more irritation but it would be unlikely that breathing would be impaired to the point of interfering with capability of self rescue

[1] Source: Alvin Greenberg, Ph.D., QEP

- Mild eye, nose, or throat irritation
- Eye, ear, & throat irritation in sensitive people
- Asthmatics might have breathing difficulties but would not impair capability of self rescue

22 or 27 PPM
WITHIN SECONDS:

- Most people would notice an odor;
- No tearing of the eyes would occur;
- Odor might be uncomfortable for some;
- Sensitive people may experience some irritation but ability to leave area would not be impaired;
- Slight irritation after 10 minutes in some people.

4.0, 2.2, or 1.6 PPM

- No adverse effects would be expected to occur;
- Doubtful that anyone would notice any ammonia (odor threshold 5 - 20 PPM);
- Some people might experience irritation after 1 hr.

LAND USE

Amanda Stennick

SUMMARY OF CONCLUSIONS

Staff has reviewed Riverside County's advisory conditional use permit for the Sun Valley Energy Project (SVEP) and agrees with the County's conclusions regarding the SVEP's compliance with its land use laws, ordinances, regulations and standards (LORS). As conditioned, the project would comply with all applicable Riverside County land use LORS.

INTRODUCTION

The land use analysis of the SVEP Application for Certification (05-AFC-3) focuses on the project's consistency with land use plans, ordinances, and policies, and the project's compatibility with existing and planned land uses. In general, a power plant and its related facilities have the potential to create impacts in the areas of noise, dust, public health, traffic, and visual resources. These individual resource areas are discussed in separate sections of this document. A power plant may also create a significant impact if it converts prime or unique farmland or farmland of statewide importance to non-agricultural uses.

LAWS, ORDINANCES, REGULATION, AND STANDARDS

The following table contains all applicable land use laws, ordinances, regulations, and standards.

LAND USE Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable Law	Description
Federal	The proposed project is not located on federally administered lands and is not subject to federal land use regulations.
State	There are no state land use LORS for this project.
Local Riverside County	Riverside County requires a conditional use permit for the proposed use in the Manufacturing-Service Commercial Zone (Article XI of Riverside County Ordinance 348). Riverside County requires a parcel merger for LORS compliance (Ordinance 460.139). All land divisions in the unincorporated area of the County of Riverside are subject to the applicable provisions of the Subdivision Map Act and this ordinance. Under this ordinance, a merger of contiguous parcels requires the landowner to file an application for a Certificate of Parcel Merger.

SETTING

The SVEP site is located in a rural area about two miles northeast of unincorporated Sun City and one mile southeast of the unincorporated community of Romoland in Riverside County. Much of the area within a one-mile radius is being developed into

residential, commercial, and industrial land uses. The project site was recently used for non-irrigated wheat production but will not be cultivated in 2007.

The SVEP site is located approximately 900 feet west of Menifee Road, south of the Burlington Northern Santa Fe (BNSF) Railroad line and Matthews Road. The SVEP subject property consists of five parcels totaling approximately 37 acres: Assessor's Parcel Numbers (APN) 331-250-008, 331-250-014, 331-250-018, 331-250-019, and 331-250-020. The applicant proposes to develop the project on two of the parcels (APNs 331-250-019 and 331-250-020), which total about 20 acres.

SURROUNDING LAND USE

The western portion of Riverside County including the area of the project site is experiencing rapid growth and development. The rural residential nature of the region is changing and Riverside County expects to develop much of the land within the project vicinity into a mix of residential, commercial, and industrial uses. Surrounding land uses are as follows:

West and southwest: agriculture and rural residential, undeveloped open space.

East and northeast: residential, a residential subdivision under construction, agriculture, open space, commercial, and industrial uses.

North: Southern California Edison Valley Substation, a wood chipping facility, the Inland Empire Energy Center (under construction), residential, commercial, agricultural, and undeveloped open space.

The project site and most of the surrounding area within a one-mile radius are mapped as Farmland of Local Importance by the California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP). Also within the one-mile radius are areas of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Urban and Built-Up Land or Other Land (California Department of Conservation). The project site does not have a Williamson Act contract.

There are currently two open and operating schools located within a one-mile radius of the project site. The Boulder Ridge K-8 School is now operating and is 0.52 mile southwest of the project site. The Mesa View K-8 School has recently opened and is approximately 0.75 mile south of the SVEP There is one place of worship within a one-mile radius of the project site, the Believers Bible Church, 28480 State Route 74, in Romoland.

LAND USE Figures 1, 2, and 3 show the existing land uses, General Plan designations, and zoning within one mile of the project site, respectively.

RIVERSIDE COUNTY GENERAL PLAN

The Riverside County General Plan land use designation for the project site is Light Industrial (LI). The LI designation allows for a variety of industrial and related uses, including assembly and light manufacturing, repair and other service facilities, warehousing, distribution centers, and supporting retail uses.

The Riverside County General Plan calls for the County to examine significant projects and regional planning based on regional growth forecasts. General Plan goals are an expression of the County's long-term comprehensive planning for the physical development and growth of the County. The policies contained in the General Plan describe guidelines and implementation measures towards achieving specific goals for the growth and development of Riverside County. The following land use policy is applicable to the proposed project:

Policy LU 6.1: Require land uses to develop in accordance with the General Plan and area plans to ensure compatibility and minimize impacts.

SUN CITY/MENIFEE VALLEY AREA PLAN

Although a part of the Riverside County General Plan, the Sun City/Menifee Valley Area Plan is intended to provide additional land use goals and policies that address the specific planning concerns and needs within the Sun City/Menifee Valley area.
The Sun City/Menifee Valley Area Plan land use designation for the project site is Light Industrial; the project's transmission line, natural gas pipeline, and wastewater pipeline would cross land designated Light Industrial. Under the Sun City/Menifee Valley Area Plan, Light Industrial uses must be compatible with adjacent uses, including protective measures to assure compatibility, and must be designed to provide convenience and not be detrimental to residential and commercial areas. There are no other policy areas in the Sun City/Menifee Valley Area Plan that would affect the land use designation for the project site.

RIVERSIDE COUNTY ZONING

Article XI of Riverside County Zoning Ordinance 348 designates the site as Manufacturing-Service Commercial (M-SC), which allows for industrial uses such as public utility substations and storage yards. Article XI seeks to promote and attract industrial and manufacturing activities that provide jobs to local residents, strengthen the County's economic base, provide the necessary improvements to support industrial growth, ensure that new industry is compatible with uses on adjacent lands, and protect industrial areas from encroachment of incompatible uses that may jeopardize industry. The development standards for the M-SC Zone are listed below.

Lot Size: The minimum lot size shall be 10,000 square feet with a minimum average width of 75 feet, except that a lot size not less than 7,000 square feet and an average width of not less than 65 feet may be permitted when sewers are available and will be utilized for the development.

Setbacks: (1) Where the front, side, or rear yard adjoins a lot zoned R-R, R-1, R-A, R-2, R-3, R-4, R-6, R-T, R-T-R, or W-2-M, the minimum setback shall be 25 feet from the property line.
(2) Where the front, side, or rear yard adjoins a lot with zoning classification other than those specified in paragraph (1) above, there is no minimum setback.
(3) Where the front, side, or rear yard adjoins a street, the minimum setback shall be 25 feet from the property line.
(4) Within the exception of those portions of the setback area for which landscaping is required by Subsection e. [not included herein], the setback area may only be used for

driveways, automobile parking, or landscaping. A setback area which adjoins a street separating it from a lot with a zoning classification other than those specified in paragraph (1) above, may also be used for loading docks.

Height Requirements: The height of structures, including buildings, shall be as follows:
(1) Structures shall not exceed 40 feet at the yard setback line.
(2) Buildings shall not exceed 50 feet unless a height up to 75 feet is approved pursuant to Section 18.34 of this ordinance.
(3) Structures other than buildings shall not exceed 50 feet unless a height up to 105 feet is approved pursuant to Section 18.34 of this ordinance.
(4) Broadcasting antennas shall not exceed 50 feet unless a greater height is approved pursuant to Section 18.34 of this ordinance.

Parking Areas: Parking areas shall be provided as required by Section 18.12 of this ordinance.

Utilities: Utilities shall be installed underground except electrical lines rated at 33 kV or greater.

ORDINANCE 460.139: SUBDIVISION MAP ACT

The Subdivision Map Act (Public Resources Code Section 66410-66499.58) provides procedures and requirements regulating land divisions and mergers, and determines parcel legality. The County of Riverside adopted Ordinance 460.139 pursuant to the provisions of the Subdivision Map Act. All land divisions in the unincorporated area of Riverside County are subject to all the applicable provisions of the Subdivision Map Act and this ordinance. In addition, under this ordinance, a merger of contiguous parcels requires the landowner to file an application for a Certificate of Parcel Merger. The application would be reviewed by the County Surveyor for recommendation to the County Planning Department, which has the authority to grant the Certificate of Parcel Merger. The parcels must be under common ownership, consistent with the zoning of the property, and cannot conflict with the location of any existing structures on the property.

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

California Environmental Quality Act

Significance criteria are based on the California Environmental Quality Act (CEQA) Guidelines and on performance standards or thresholds adopted by responsible agencies. An impact may be considered significant if the project:

- conflicts with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect;
- disrupts or divides the physical arrangement of the established community; and

- converts Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural uses.

A project may also have a significant impact on land use if it would create unmitigated noise, dust, public health hazard or nuisance, traffic, or visual impacts, or when it precludes or unduly restricts existing or planned future uses. Please see the **NOISE**, **PUBLIC HEALTH**, **TRAFFIC AND TRANSPORTATION**, **AIR QUALITY, and VISUAL RESOURCES** sections of this document for discussion of project impacts and mitigation.

DIRECT/INDIRECT IMPACTS AND MITIGATION

The project as conditioned would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Please refer to the **COMPLIANCE WITH LORS** section of this document for a discussion of the SVEP's consistency with the Riverside County Zoning Ordinance, General Plan, and the Sun City/Menifee Valley Area Plan.

Neither the size nor nature of the SVEP would result in a physical division or disruption of an established community because no new physical barriers would be created by the project and no existing roadways or pathways would be blocked.

Farmland Conversion

The project site (about 20 acres) and most of the surrounding area within a one-mile radius are mapped as Farmland of Local Importance by the California Department of Conservation's (DOC) Farmland Mapping and Monitoring Program. The site is currently used for commercial production of wheat. Because the site is not designated Prime, Unique, or Farmland of Statewide Importance by the DOC, the conversion of the land is not considered a significant impact under CEQA. In addition, the subject SVEP parcels are designated in the Riverside County General Plan and the Sun City/Menifee Valley Area Plan as Light Industrial and zoned Manufacturing-Service Commercial in the Riverside County zoning code, regardless of their agricultural use. Therefore, the SVEP will not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, to non-agricultural uses.

Compatibility with Existing and Planned Land Uses

Staff recognizes that if planned residential developments are fully implemented they would be located within one-quarter mile of the proposed SVEP. However, the Riverside County General Plan and Sun City/Menifee Valley Area Plan designate the site as Light Industrial and surrounding lands to the north and northwest as Light Industrial and Heavy Industrial. Given the existing industrial uses in the immediate vicinity of the proposed project and the industrially designated nature of the area, it is likely that the pattern of development would continue to be industrial.

Energy Commission staff has found no unmitigated impacts in the areas of **NOISE**, **TRAFFIC and TRANSPORTATION**, **PUBLIC HEALTH**, and **VISUAL RESOURCES**. At this time, the **AIR QUALITY** staff concludes that the applicant has not secured sufficient

offsets to satisfy South Coast Air Quality Management District New Source Review rules. Please refer to the **AIR QUALITY** section of this document for a complete analysis of air quality issues.

Staff has considered the minority (as identified in **Socioeconomics Figure 1**) and low-income populations in its impact analysis. There are no significant adverse land use impacts and therefore, no environmental justice issues.

CUMULATIVE IMPACTS AND MITIGATION

The project would not by itself or cumulatively adversely affect lands designated Prime Farmland, Farmland of Statewide Importance, or Unique Farmlands. Further, the project is consistent with the general plan and zoning designations for Riverside County.

The project area is experiencing extensive growth with continued growth expected for the next few years. Development of large areas under the Menifee North, Menifee Ranch, Meniffee Village, and Winchester Hills Specific Plans has been occurring since the late 1990s. These developments can be characterized as primarily mixed use with residential, commercial, and light industrial sectors.

Riverside County and Energy Commission staff do not expect the proposed project to make a significant contribution to regional impacts related to new development, such as the kind of development that induces population in-migration, an increased demand for public services, and extension of public infrastructure. The SVEP is planned to serve Riverside County's existing and anticipated electrical needs. Therefore, Energy Commission staff finds the project would not by itself or cumulatively have a significant adverse effect on land use. It is possible that the proximity of the project to proposed growth and development could contribute to cumulative future impacts on air quality, public health, visual resources, and noise. Any impacts of these types are addressed in greater detail in the **AIR QUALITY**, **PUBLIC HEALTH**, **VISUAL RESOURCES,** and **NOISE** sections of this document.

Staff has considered the minority (as identified in **Socioeconomics Figure 1**) and low-income populations in its cumulative impact analysis. There are no significant adverse cumulative land use impacts and therefore, no environmental justice issues.

COMPLIANCE WITH LORS

Riverside County General Plan

Staff's analysis shows that as conditioned, the project does not generate excessive noise, traffic, light, fumes, or odors that might have a negative impact on adjacent neighborhoods, and does not jeopardize public health, safety, and welfare. Also, the project as conditioned by **LAND-1** would ensure that the SVEP would be compatible in scale and design with surrounding land uses. Therefore, staff concludes that the SVEP is consistent with Riverside County General Plan Policy LU 6.1.

Sun City/Menifee Valley Area Plan

Staff's analysis and Riverside County's advisory CUP letter (as discussed below) show that with the recommended condition of certification **LAND-1**, the SVEP would ensure compatibility with surrounding land uses and therefore be consistent with the Sun City/Menifee Valley Area Plan.

Riverside County Conditional Use Permit

To ensure Riverside County's timely review of the project's local LORS compliance, Edison Mission Energy (EME) submitted an application and associated fees to Riverside County for an advisory Conditional Use Permit (CUP) (Riverside County 2006a). The County is aware that their CUP is advisory and their actions in this matter represent a review of the project that the County would normally undergo but for the Energy Commission's exclusive jurisdiction and permit authority. In addition to zoning development standards, the advisory CUP addresses and conditions the project in the areas of biological resources, visual resources, drainage and flood control, health, waste, socioeconomic resources, and traffic and transportation. Please see **Land Use Appendix 1** for the full text of Riverside County's advisory CUP.

Energy Commission staff received Riverside County's March 13, 2007 (docketed April 5, 2007) advisory CUP and land use conformity for LORS. Summarized below are the actions the County Planning Department would recommend if the County were the agency responsible for permitting the SVEP:

Natural Gas-fired Power Generation Facility: In the view of the County Planning Department, a power generating facility is similar in character and intensity to uses identified as conditionally authorized in the M-SC zone. As a result, the Planning Department would recommend that the County Planning Commission authorize the power generating facility as a conditional use in the M-SC Zone, based on findings set forth in Exhibit A to Attachment 1 of the advisory CUP letter and subject to the conditions listed in Exhibit B. With a conditional use permit incorporating the listed conditions, the power generating facility would be consistent with local land use LORS.

Exhaust Stacks: In the view of the County Planning Department, the combination of the project site's unique physical characteristics and the application of South Coast Air Quality Management District regulations to the project site constitute special circumstances that are consistent with the intent and purpose of the M-SC zone classification. In accordance with County Ordinance No. 348, section 18.34 paragraph (b), the permit application may allow up to 105 feet. With this definition of the allowed height by the permit, the stacks would be consistent with local land use LORS.

In Exhibit B of the advisory CUP letter, Riverside County states that "The balance (undeveloped) portion of the property shall be designated as "NO USE PROPOSED", and shall require approval of an appropriate land use application prior to utilization of any additional land uses subject to the requirements of County Ordinance No. 348." Staff notes that under the Warren Alquist Act the applicant would be required to submit an amendment to the SVEP 05-AFC-3, if it were to propose a change in the project

description or propose any additional use on the subject parcels after the licensing of the proposed project. Because of the Energy Commission's amendment requirements, staff proposes no condition of certification implementing the County's suggested designation.

LAND USE Table 2 shows the Development Standards and Consistency Determination for the SVEP.

LAND USE Table 2
Development Standards and Consistency Determination for SVEP

Development standards for the M-SC Zone. Riverside County Ordinance 348	**Consistency Determination**
Lot Size: The minimum lot size shall be 10,000 square feet with a minimum average width of 75 feet, except that a lot size not less than 7,000 square feet and an average width of not less than 65 feet may be permitted when sewers are available and will be utilized for the development.	Consistent. The project would conform to this standard because after parcels 331-250-019 and 331-250-020 are merged the parcel would total about 20 acres.
The maximum height of any building or structure permitted as part of this project shall be no greater than 105 feet.	Consistent. The project would conform to this standard because the tallest structures (exhaust stacks) would be 90 feet high.
Where the front, side, or rear yard adjoins a street, the minimum setback shall be 25 feet from the property line.	Consistent. Figure 2.1-1 in the AFC shows the rear-yard setback to be greater than 120 feet.
The number of parking spaces provided is one space per two employees of the largest shift and one space per vehicle kept in connection with the use.	Not Consistent. For the project to conform to this standard 6 parking spaces would have to be provided. Figure 2.1-1 in the AFC does not show any parking spaces. Staff's proposed condition of certification **LAND-1** would require the project owner to provide the specified number of parking spaces.

Staff concurs with the County's advisory review that the proposed SVEP is consistent with the type of use Riverside County deems a conditional use under the M-SC zoning. In Attachment 1 of its advisory CUP, Riverside County finds that the proposed SVEP is substantially similar in character and intensity to several conditional uses in the M-SC zone, such as fertilizer production, petroleum and bulk fuel storage, paints and varnishes manufacturing, and above-ground natural gas storage. The County further finds that the proposed SVEP would be considered a less intensive use than these uses because as a peaking facility, it would operate only part of the time, would have fewer employees than most of these uses, and would generate little vehicle or truck traffic. Thus, consistent with Land Use Ordinance 348, Riverside County determines that the energy facility could be authorized in the M-SC zone as a conditionally permitted use.

But for the exclusive jurisdiction of the Energy Commission, Riverside County would require a use permit for a use such as the SVEP in the M-SC Zone. Condition of

Certification **LAND-1** assures the project's compliance with the development standards in the M-SC zone.

Ordinance 460.139: Subdivision Map Act

Riverside County Ordinance 460.139 regulates all land divisions in the unincorporated area of Riverside County. To comply with this ordinance, Riverside County would require a merger of parcels 331-250-019 and 331-250-020. Staff's Condition of Certification **LAND-2** requires the applicant to obtain the necessary approvals from the County and complete the lot merger for the project's compliance with this ordinance prior to construction.

NOTEWORTHY PUBLIC BENEFITS

From a land use perspective, a local public benefit would be that Riverside County finds the proposed SVEP would be a less intensive use than typical conditional uses in the M-SC zone because the SVEP would operate only part of the time, would have fewer employees, and would generate little vehicle or truck traffic.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

Energy Commission staff received Riverside County's March 13, 2007 advisory CUP and land use conformity for LORS. Staff has incorporated Riverside County's proposed conditions as Conditions of Certification **LAND-1** and **LAND-2**.

CONCLUSIONS

Staff's analysis shows that as conditioned, the project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project; disrupt or divide the physical arrangement of the established community; contribute to a cumulative adverse effect on land use; preclude or unduly restrict existing or planned future uses; or convert agricultural land or resources to non-agricultural uses.

Staff's analysis shows that project compliance requires the applicant to submit a final site development plan consistent with the design standards in section 11.4 of the Manufacturing-Service Commercial zone. As verification that the project complies with the applicable design standards of Land Use Ordinance 348 and with Ordinance 460.139 of the Riverside County Code, staff is proposing the following conditions of certification. Should the Energy Commission certify the project, staff recommends that the Commission adopt the following conditions of certification.

PROPOSED CONDITIONS OF CERTIFICATION

LAND-1 The project owner shall design and construct the project to the following applicable design standards in section 11.4 of the Manufacturing-Service Commercial zone and according to Section 18.34 (b) of Riverside County Ordinance 348.

1. The maximum height of any building or structure permitted as part of this project shall be no greater than 105 feet.

2. The minimum lot size shall be 10,000 square feet with a minimum average width of 75 feet, except that a lot size not less than 7,000 square feet and an average width of not less than 65 feet may be permitted when sewers are available and will be utilized for the development.

3. Where the front, side, or rear yard adjoins a street, the minimum setback shall be 25 feet from the property line.

4. The number of parking spaces required as part of this project shall be no less that one space per two employees of the largest shift and one space per vehicle kept in connection with the use, or a total of six spaces.

Verification: At least sixty (60) days prior to the start of construction the project owner shall submit to the Compliance Project Manager (CPM) written documentation including evidence of review by Riverside County that the project conforms with the standards in section 11.4 of the Manufacturing-Service Commercial zone.

LAND-2 A Certificate of Parcel Merger shall be reviewed and approved by the Riverside County Planning Department. The Parcel Merger shall merge Assessor Parcel Numbers 331-250-019 and 331-250-020. The proposed parcel shall comply with the development standards of the Manufacturing-Service Commercial (M-SC) zone.

Verification: At least thirty (30) days prior to the start of site modification, the Project Owner shall provide the CPM with proof of recordation of the parcel merger and Riverside County Planning Department approval.

References

Brady, Russell. Contract Planner. Riverside County. Personal communication with Amanda Stennick, August 1, 2006.

CEC (California Energy Commission). 2006e. Letter from Robert Worl to Roland Skumawitz, Superintendant, Romoland School District. May 24, 2006.

CH2M Hill 2006a. Applicant's Responses to CEC Staff Data Requests 1-80 for the Sun Valley Energy Project (05-AFC-3). April 17, 2006.

CH2M Hill 2006c. Applicant's Supplemental Responses to CEC Staff Data Requests 1-80 for the Sun Valley Energy Project (05-AFC-3). May 19, 2006.

CH2M Hill 2006d. Applicant's Responses to CEC Staff Data Requests 81-90 for the Sun Valley Energy Project (05-AFC-3). May 1, 2006.

County of Riverside. 2007a. Advisory Conditional Use Permit For the Sun Valley Energy Project. March 13, 2007.

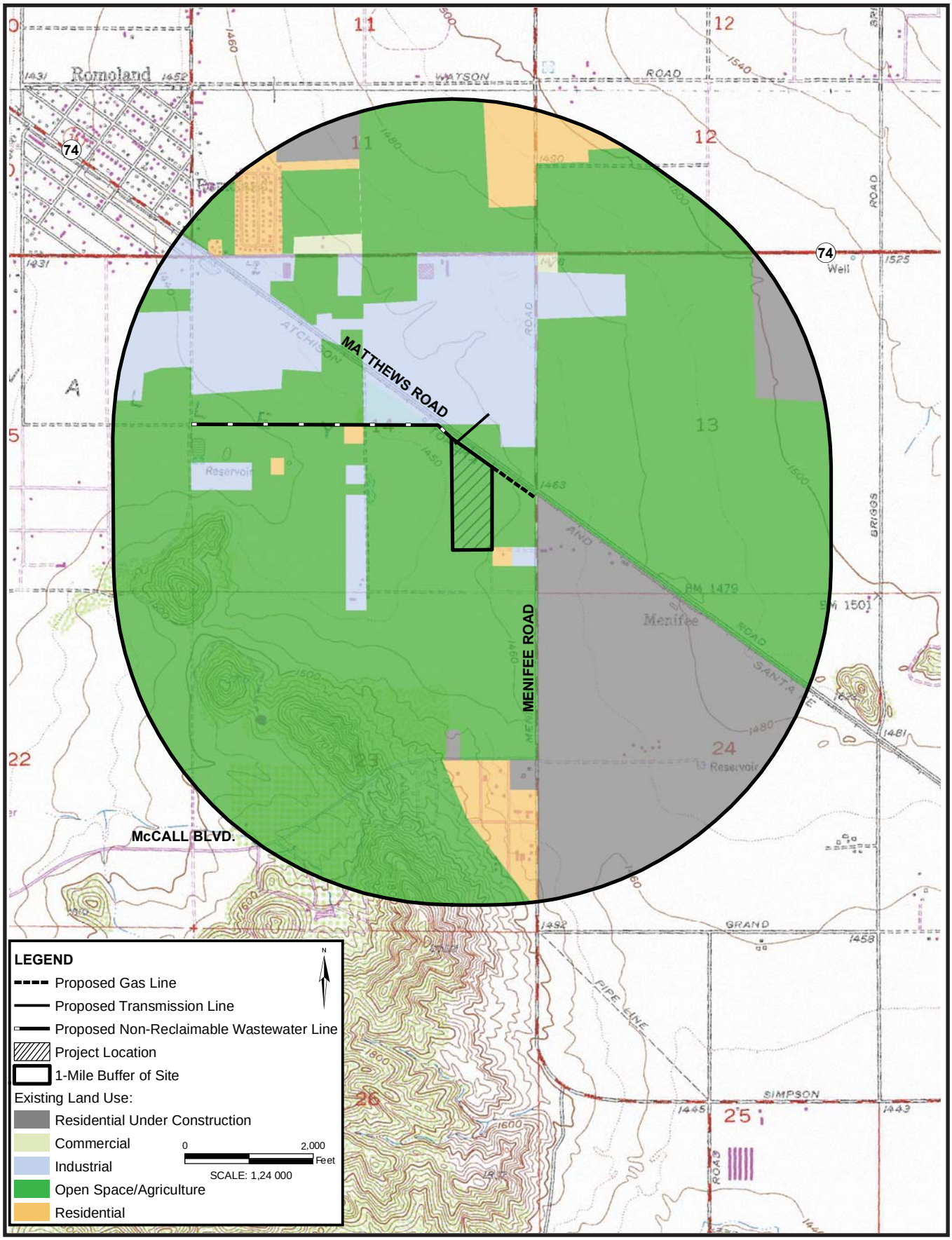
Romoland School District. 2006a. Initial School District Comments on the Proposed Sun Valley Energy Project (Revised with 2 attachments). Submitted to the California Energy Commission, March 20, 2006.

VSE (Valle del Sol Energy, LLC). 2005b. Application for Certification for Sun Valley Energy Project, Volumes 1 and 2. Submitted to the California Energy Commission, December 1, 2005.

VSE (Valle del Sol Energy, LLC). 2006a. Data Adequacy Supplement for Sun Valley Energy Project, Application for Certification. January 12, 2006.

LAND USE - FIGURE 1

Sun Valley Energy Project - Existing Land Uses within one mile of Project Site

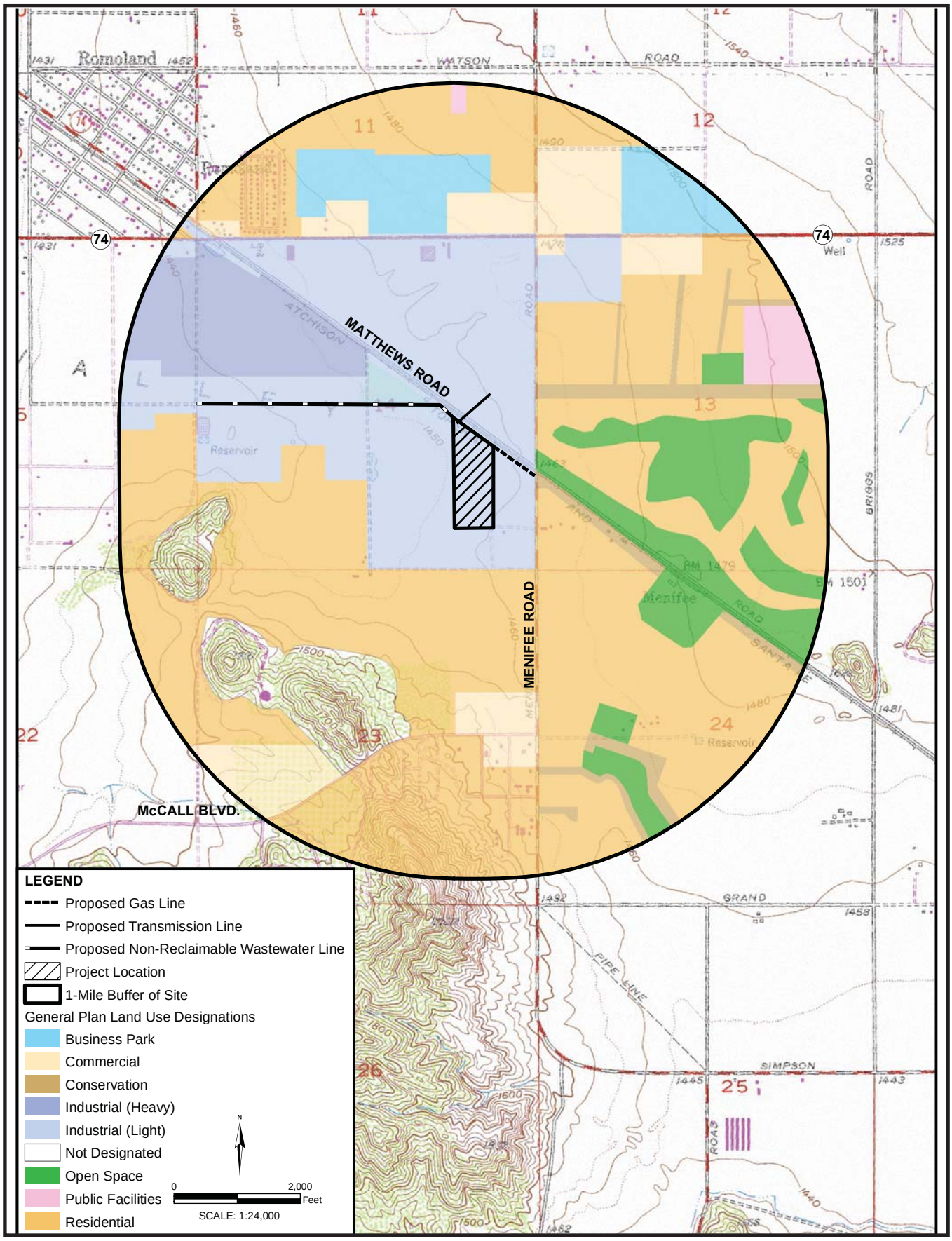


CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, AUGUST 2006

SOURCE: AFC Figure 8.6-1

LAND USE - FIGURE 2

Sun Valley Energy Project - General Plan Designations within one mile of Project Site

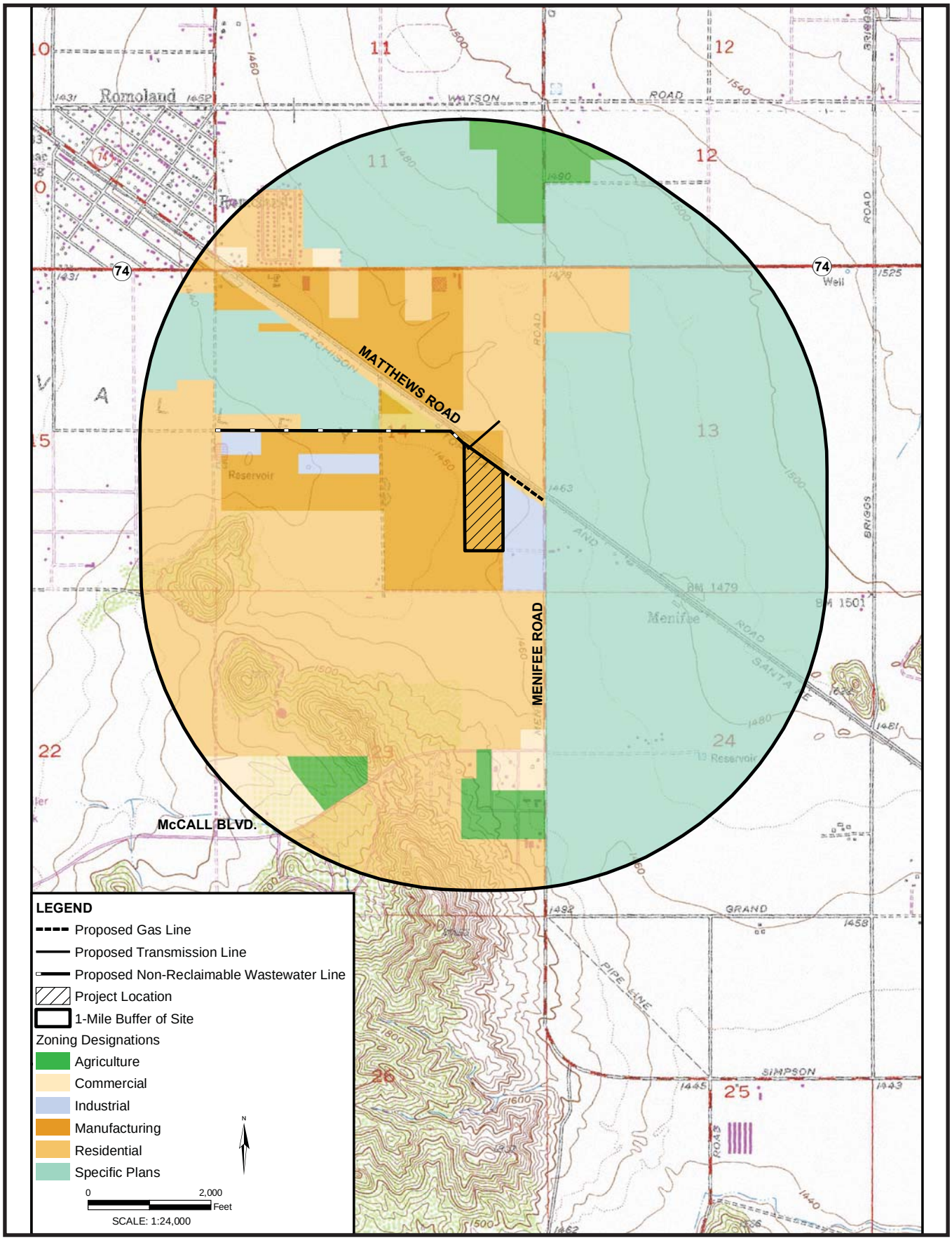


CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, AUGUST 2006

SOURCE: AFC Figure 8.6-2

LAND USE - FIGURE 3

Sun Valley Energy Project - Zoning Designations within one mile of Project Site



CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, AUGUST 2006

SOURCE: AFC Figure 8.6-3

SUN VALLEY ENERGY PROJECT
05-AFC-3

LAND USE

ATTACHMENT 1

COUNTY OF RIVERSIDE

TRANSPORTATION AND LAND MANAGEMENT AGENCY

Tony Carstens · Agency Director

Planning Department

Robert C. Johnson · Planning Director

March 13, 2007

Robert Worl
Project Manager
California Energy Commission
1516 Ninth Street, MS 15
Sacramento, CA 95814

RE: Sun Valley Energy Project

California Energy Commission (CEC) Staff recently requested that Riverside County provide input as to whether the proposed Sun Valley Energy Project electric generating facility complies with relevant local land use laws, ordinances, regulations, and standards (LORS).

Over the past several months, representatives of Valle del Sol, LLC, the project proponent, have been discussing the proposed project with the Riverside County Planning Department. The Planning Department along with other reviewing departments have reviewed plans for the proposed project along with a copy of the Application for Certification and related documents.

Based on our discussions with Valle del Sol, LLC representatives and CEC staff, and our review of the Warren-Alquist Act, The County understands that the CEC has exclusive authority to certify all power plant sites and related facilities in California. The issuance of a certificate by the CEC operates in lieu of any permit or authorization required by any state or local agency, including land use authorizations. Valle del Sol, LLC representatives and CEC staff have explained that as part of the review process, the Warren-Alquist Act requires that the CEC determine whether a project complies with applicable LORS. In order to fulfill that requirement, the CEC typically requires input from the regulatory agencies that administer LORS that apply to potential projects.

The County Planning Department has carefully considered whether the Sun Valley Energy Project, including the power generating facility, and all ancillary facilities, would conform to applicable local land use LORS. Our analysis is contained in the enclosed Attachment 1, Sun Valley Energy Project Land Use Conformity Analysis, Local Laws, Ordinances, Regulations, and Standards. For each project feature, we identify the applicable zoning designation, analyze compliance with those designations, describe the type of County authorization that would be required (if any) and list conditions that the County would impose in an authorization.

Summarized below are the actions which the County Planning Department would recommend if the County were the agency responsible for permitting the Sun Valley Energy Project:

> *Natural Gas-fired Power Generation Facility*: In the view of the County Planning Department, a power generating facility is similar in character and intensity to uses identified as conditionally authorized in the M-SC zone. As a result, the Planning Department would recommend that the County Planning Commission authorize the power generating facility as a conditional use in the M-SC Zone, based on findings set forth in Exhibit A to Attachment 1 and subject to the conditions listed in Exhibit B. With a conditional use permit incorporating the listed conditions, the power generating facility would be consistent with local land use LORS.
>
> *Exhaust Stacks*: In the view of the County Planning Department, the combination of the project site's unique physical characteristics and the application of South Coast Air Quality Management District regulations to the project site constitute special circumstances that are consistent with the intent and

Riverside Office · 4080 Lemon Street, 9th Floor
P.O. Box 1409, Riverside, California 92502-1409
(951) 955-3200 · Fax (951) 955-3157

Indio Office · 82-675 Hwy 111, 2nd Floor
Room 209, Indio, California 92201
(760) 863-8277 · Fax (760) 863-7555

Murrieta Office · 39493 Los Alamos Road
Murrieta, California 92563
· Fax (951) 600-6145

purpose of the M-SC zone classification. In accordance with County Ordinance No. 348, section 18.34 paragraph (b), the permit application may allow up to 105'. With this definition of the allowed height by the permit, the stacks would be consistent with local land use LORS.

Electric Transmission Facilities: The electric generation tie line facilities necessary to interconnect the Sun Valley Energy Project with the existing Southern California Edison (SCE) transmission system will be reviewed in the CEC process. SCE is a public utility regulated by the California Public Utilities Commission. As a result, the construction, operation, and maintenance of the project-related electric transmission facilities will be regulated by the CEC and CPUC, and no permitting action would be required by the County.

Please contact Robert C. Johnson, Planning Director or Russell Brady, Contract Planner at (951) 955-1888 if you have any questions regarding this analysis or if you require additional information.

Sincerely,

John F. Tavaglione, Supervisor
Second District
Chairman of the Board

ATTEST:
NANCY ROMERO, Clerk of the Board
By
Deputy

03.13.07 3.42

EXHIBIT A

SUN VALLEY ENERGY PROJECT

FINDINGS:
CONDITIONAL USE PERMIT

In accordance with Section 11.2(g) of the Land Use Ordinance, the following are the findings that would support a determination by the County Planning Director that the natural gas-fired power generating facility proposed by Valle del Sol, LLC is substantially the same in character and intensity as the other permitted and conditionally permitted uses in the M-SC zone and, therefore may be authorized as a conditionally permitted use in the M-SC zone.

The M-SC zone does not specifically list power generation facilities as permitted or conditionally permitted uses (County Code Article XI). The County Code provides that any use that is not specifically listed as a permitted or conditionally permitted use may be considered a permitted or conditionally permitted use if the Planning Director finds that the proposed use is "substantially the same in character and intensity" as those listed in the sections which identify permitted or conditionally permitted uses (County Code Section 11.2g). Here, the proposed energy facility is of substantially the same character and intensity, or even less intensity, as uses specifically identified as permitted or conditionally permitted uses. For example, uses of similar character and intensity to the energy facility would include textile mills, Section 11.2(b)(1)(b); wood product mills, Section 11.2(b)(1)(c); paper and paperboard mills, Section 11.2(b)(1)(d)(1); manufacture of agricultural chemicals, Section 11.2(b)(1)(e)(1); manufacture of metal products Section 11.2(b)(1)(h); manufacture of machinery, Section 11.2(b)(1)(i); and public utility substations, Section 11.2(b)(2), acid and abrasives manufacture, Section 11.2(c)(5).

A. The project is similar in aesthetic character and land use intensity as a public utility substation, a permitted use under 11.2(b)(2).

   1. The purpose of both uses is the transformation and distribution of electrical energy. The purpose of the project is to convert the thermal energy of natural gas to electrical energy for distribution to the electrical service grid. The substation transforms electrical energy from one voltage to another for distribution to the electrical service grid.

   2. The project has the potential to result in similar or less intense visual and aesthetic impacts than an electrical substation. Both land uses necessitate the construction of large structures and transmission support towers and transmission conductors.

   3. Both land uses require a moderate amount of land. The project requires about 20 acres. The nearby SCE Valley Substation, for example, is approximately 50 acres in size.

B. The project is also similar to, but a less intensive use than, manufacturing uses such as manufacture of agricultural chemicals, a permitted use under Land Use Ordinance Section 11.2(b) or the manufacture of acids and abrasives, a conditional use under Section 11.2(c)(5). For each of these uses, the primary activity takes place within enclosed systems of mechanical equipment. The project uses a closed thermodynamic cycle to convert natural gas to electricity. Manufacturing processes for agricultural chemicals or acids and abrasives also takes place within enclosed mechanical systems.

C. The project is similar to the manufacture of engines, turbines, and parts, Section 11.2(b)(1)(i)(1), in the potential to emit similar types of air pollutants. Air emissions from plants that manufacture engines and turbines typically include testing facilities at which the engines and turbines similar to those in operation at the project will operate and emit nitrogen oxides, sulfur dioxide, particulates, and volatile organic compounds. The project will be required to control emissions of nitrogen oxides, sulfur dioxide, particulates, and volatile organic compounds to less than significant levels, in accordance with South Coast Air Quality Management District rules and regulations.

D. The project has the potential to result in similar or less intensive noise impacts than draying, freighting, and trucking operations, a conditional use under Land Use Ordinance Section 11.2(c)(18). The project would be relatively quiet and would have less than significant noise impacts on surrounding properties. As a general rule, simple-cycle plants like the proposed project, even those without significant noise controls, do not produce discrete tones that are prominent or noticeable at typical receptor distances. In contrast, the noise generated by the constant truck traffic at a freighting operation, would be significantly greater than the relatively quiet operations at a simple-cycle power generation facility like the proposed project.

E. The project is substantially the same in character as, or less intensive than, above-ground natural gas storage, a conditionally permitted use under Land Use Ordinance Section 11.2(c)(15) because both would involve the use and handling of natural gas. The project does not involve the storage of gas, however.

A. F. The project has the potential to create substantially less odor impacts than a fertilizer production facility, a conditional use under Land Use Ordinance Section 11.2(c)(6). The project, which will burn clean natural gas, will not produce any noticeable odors detectable in the surrounding area. In comparison, fertilizer production and processing facilities emit strong odors and associated impacts that require buffering from the surrounding community.

NOISE AND VIBRATION

Shahab Khoshmashrab

SUMMARY OF CONCLUSIONS

The Sun Valley Energy Project (SVEP) can be constructed and operated in compliance with all applicable laws, ordinances, regulations and standards (LORS). As originally proposed, operation of the SVEP would likely result in nighttime noise levels exceeding the LORS and would likely result in significant impacts at the noise-sensitive residential receptors. However, incorporation of the requirements embodied in staff's proposed conditions of certification would ensure that all necessary mitigation would be employed to reduce the noise levels to those consistent with the LORS. The incorporation of these requirements would also reduce the noise impacts to less than significant. The operation and construction of the SVEP would then comply with LORS and would result in no significant adverse impacts, directly, indirectly or cumulatively.

INTRODUCTION

The construction and operation of any power plant creates noise, or unwanted sound. The character and loudness of this noise, the times of day or night that it is produced, and the proximity of the facility to sensitive receptors combine to determine whether the facility would meet applicable noise control laws and ordinances, and whether it would cause significant adverse environmental impacts. In some cases, vibration may be produced as a result of power plant construction practices, such as blasting or pile driving. The ground-borne energy of vibration has the potential to cause structural damage and annoyance.

The purpose of this analysis is to identify and examine the likely noise and vibration impacts from the construction and operation of the Sun Valley Energy Project (SVEP), and to recommend procedures to ensure that the resulting noise and vibration impacts would be adequately mitigated to comply with applicable LORS, and to avoid creation of significant adverse noise or vibration impacts. For an explanation of technical terms and acronyms employed in this section, please refer to **NOISE Appendix A** immediately following.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

NOISE Table 1
Laws, Ordinances, Regulations and Standards (LORS)

Applicable Law	Description
Federal (OSHA): 29 U.S.C. § 651 et seq.	Protects workers from the effects of occupational noise exposure
State (Cal-OSHA): Cal. Code Regs., tit. 8, §§ 5095-5099	Protects workers from the effects of occupational noise exposure
Local:	
Riverside County General Plan, Chapter 7: Noise Element	Quantifies exterior noise level limits at sensitive human receptors
Riverside County Code, Chapter 15.04	Limits hours of construction to daytime hours

FEDERAL

Under the Occupational Safety and Health Act of 1970 (OSHA) (29 U.S.C. § 651 et seq.), the Department of Labor, Occupational Safety and Health Administration (OSHA) has adopted regulations (29 C.F.R. § 1910.95) designed to protect workers against the effects of occupational noise exposure. These regulations list permissible noise exposure levels as a function of the amount of time during which the worker is exposed (see **NOISE Appendix A, Table A4** immediately following this section). The regulations further specify a hearing conservation program that involves monitoring the noise to which workers are exposed, assuring that workers are made aware of overexposure to noise, and periodically testing the workers' hearing to detect any degradation.

There are no federal laws governing off-site (community) noise.

The only guidance available for evaluation of power plant vibration are guidelines published by the Federal Transit Administration (FTA) for assessing the impacts of ground-borne vibration associated with construction of rail projects. These guidelines have been applied by other jurisdictions to assess ground-borne vibration of other types of projects. The FTA-recommended vibration standards are expressed in terms of the "vibration level," which is calculated from the peak particle velocity measured from ground-borne vibration. The FTA measure of the threshold of perception is 65 VdB,[1] which correlates to a peak particle velocity of about 0.002 inches per second (in/sec). The FTA measure of the threshold of architectural damage for conventional sensitive structures is 100 VdB, which correlates to a peak particle velocity of about 0.2 in/sec.

[1] VdB is the common measure of vibration energy.

STATE

California Government Code section 65302(f) encourages each local governmental entity to perform noise studies and implement a noise element as part of its General Plan. In addition, the California Office of Planning and Research has published guidelines for preparing noise elements, which include recommendations for evaluating the compatibility of various land uses as a function of community noise exposure.

The California Occupational Safety and Health Administration (Cal-OSHA) has promulgated Occupational Noise Exposure Regulations (Cal. Code Regs., tit. 8, §§ 5095-5099) that set employee noise exposure limits. These standards are equivalent to the federal OSHA standards (see the **Worker Safety and Fire Protection** section of this document, and **NOISE Appendix A, Table A4**).

LOCAL

Noise Element of the Riverside County General Plan

Monitoring locations M1 and M2 and the Menifee Valley Ranch planned development (Menifee Valley Ranch) are all located within the County of Riverside. Chapter 7 of the Riverside County General Plan, Noise Element (Riverside County 2006a) is the applicable noise standard. It sets forth exterior noise level limits for stationary noise sources within Riverside County. These limits establish standard noise levels for both daytime and nighttime noise levels (VSE 2005b, §§ 8.7.3.3.3, 8.7.6.3, Table 8.7-9). Staff uses these standards to evaluate the project noise impact from the operation and construction of the SVEP.

The applicable noise standards for various uses during operations are expressed in Section N 2.3 (Exterior Noise Standards for Residential Receptors) and Section N 4.1 (Noise Standards at any Sensitive Receptor) of the Noise Element, and are summarized below in **NOISE Table 2**. These standards declare that noise impacts on noise-sensitive receptors be no greater than 65 dBA 10-minute L_{eq} during daytime hours (7 a.m. to 10 p.m.), and no greater than 45 dBA L_{eq} during nighttime hours (10 p.m. to 7 a.m.).

NOISE Table 2
Exterior Noise Limits

Noise Limit (dBA) 10-minute L_{eq}		
Land Use	Time Period	
	7 a.m. to 10 p.m.	10 p.m. to 7 a.m.
Residential (including Schools)	65	45

Source: Riverside County 2006a, Table N-2

Riverside County Code

Chapter 15.04, Section 15.04.020 of the Riverside County Code (Riverside County Code 2006a) limits construction activities to the daytime hours of 6 a.m. to 6 p.m. within 1/4 mile of any noise-sensitive residential receptor (VSE 2005b, § 8.7.5.3; Table 8.7-9).

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires that significant environmental impacts be identified and that such impacts be eliminated or mitigated to the extent feasible. Section XI of Appendix G of CEQA Guidelines (Cal. Code Regs., tit. 14, App. G) sets forth some characteristics that may signify a potentially significant impact. Specifically, a significant effect from noise may exist if a project would result in:

1. Exposure of persons to, or generation of, noise levels in excess of standards established in the local General Plan or noise ordinance, or applicable standards of other agencies;

2. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;

3. Substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or

4. Substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

The Energy Commission staff, in applying item 3 above to the analysis of this and other projects, has concluded that a potential for a significant noise impact exists where the noise of the project plus the background exceeds the background by 5 dBA or more at the nearest sensitive receptor, including those receptors that are considered a minority population.

Staff considers it reasonable to assume that an increase in background noise levels up to 5 dBA in a residential setting is insignificant; an increase of more than 10 dBA is considered significant. An increase between 5 and 10 dBA should be considered adverse, but may be either significant or insignificant, depending on the particular circumstances of a case.

Factors to be considered in determining the significance of an adverse impact as defined above include:

1. The resulting combined noise level [2];

2. The duration and frequency of the noise;

3. The number of people affected;

[2] For example, a noise level of 40 dBA would be considered quiet in many locations. A noise limit of 40 dBA would be consistent with the recommendations of the California Model Community Noise Control Ordinance for rural environments, and with industrial noise regulations adopted by European jurisdictions. If the project would create an increase in ambient noise no greater than 10 dBA at nearby sensitive receptors, and the resulting noise level would be 40 dBA or less, the project noise level would likely be insignificant.

4. The land use designation of the affected receptor sites; and

5. Public concern or controversy as demonstrated at workshops or hearings, or by correspondence.

Noise due to construction activities is usually considered to be insignificant in terms of CEQA compliance if:

- The construction activity is temporary;
- Use of heavy equipment and noisy activities is limited to daytime hours; and
- All industry-standard noise abatement measures are implemented for noise-producing equipment.

Staff uses the above method and threshold to protect the most sensitive populations including the minority population. The **LAND USE** section of this PSA contains additional information regarding zoning and the surrounding uses associated with the SVEP project site.

SETTING

The project site lies in Open Space/Agricultural land use and is surrounded predominantly by Open Space/Agricultural and Industrial land uses (see **NOISE Figure 1** for surrounding uses within a one-mile radius of the proposed project). Much of the area within a one-mile radius to the project site has been, or is being, developed into residential, commercial, and industrial land uses (VSE 2005b, §§ 8.6.1.1), including the Inland Empire Energy Center (01-AFC-17), currently under construction approximately 0.7 miles to the northwest. There are several major developments in the immediate project vicinity that may significantly increase ambient noise levels in the project area in the near future, as well as constituting sensitive noise receptors (VSE 2005b, AFC § 8.7.2.2). These include Menifee Valley Ranch housing subdivision, and further away from the project site will be several other, smaller residential and commercial developments along McCall Boulevard to the south of the project site. In addition, the area surrounding the SVEP and between the SVEP and Menifee Valley Ranch is expected to be filled with industrial buildings which will help block noise from the SVEP and buffer it from residential areas to the south and east.

The nearest existing residences to the project site include a residence on an adjacent parcel to the southeast within 300 feet of the project's southern boundary and a residence 1,100 feet to the west (VSE 2005b, AFC §§ 8.7.2.1, 8.7.3.3.3). These residences, however, are non-conforming uses in areas zoned industrial; therefore, staff does not evaluate project noise impacts at these receptors. But, in the event that actual construction or operation noise should annoy these nearby residences, staff proposes Conditions of Certification **NOISE-1**, **NOISE-2** and **NOISE-6**, which establish a Noise Complaint Process that requires the applicant to resolve any problems caused by the project noise and which limit noisy construction activities to occur during daytime hours.

Currently, the nearest sensitive noise receptors considered are the Boulder Ridge Elementary School near noise monitoring location M2, approximately 3,000 feet south

of the project site, near the intersection of McCall Boulevard and Menifee Road within unincorporated Riverside County (VSE 2005b, AFC § 8.7.2.2; Fig. 8.7-1), and residential receptors located east of the project site. These residences will be in the Menifee Valley Ranch subdivision that is now under construction east of Menifee Road, approximately 1,000 feet east of the project site (see **NOISE Figure 2**) (VSE 2005b, AFC §§ 8.7.2.1, 8.7.2.2). Construction of this development is scheduled to be completed prior to the SVEP becoming operational in the year 2008 (VSE 2005b, AFC § 8.7.3.3.3, p. 8.7-12). As explained above, there are currently no other noise-sensitive residential receptors within residential zoning in the immediate proximity of the project site.

Ambient Noise Monitoring

In order to establish a baseline for comparison of predicted project noise to existing ambient noise, the applicant has presented the results of an ambient noise survey (VSE 2005b, AFC § 8.7.2.2; Tables 8.7-3, 8.7-4; Figure 8.7-1). This survey was performed on Wednesday, September 7 through Thursday, September 8, 2005 (monitoring location M1) and on Thursday, September 8, 2005 (monitoring location M2), using acceptable equipment and techniques. The noise survey monitored existing noise levels at the following two locations, shown on **NOISE Figure 2**:

1. Location M1: In the center of the project site approximately 700 feet from the nearest roadway. This location was monitored continuously from 7:25 p.m. on September 7 through 8:00 p.m. on September 8.

2. Location M2: On the lower flanks of a hill, approximately 700 feet from Menifee Road and McCall Boulevard. This location is near Boulder Ridge Elementary School, approximately 0.52 miles south of the project site. This location was monitored for 15 minutes during the night (1:53 a.m.) on September 8.

In general, the noise environment in the vicinity of the project site is dominated by transportation-related sources.

NOISE Table 3 summarizes the ambient noise measurements (VSE 2005b, AFC § 8.7.2.2; Tables 8.7-3, 8.7-4). The noise regime at monitoring location M2 is similar to that at monitoring location M1 during daytime hours; both M1 and M2 are approximately equidistant from the primary noise source, Menifee Road. No daytime ambient noise monitoring was performed at M2. Staff therefore assumed it would be reasonable to use the available daytime levels from M1 to calculate the average daily noise level at M2. Staff has done that in this analysis and has included this calculated daytime ambient noise level at M2, or 49 dBA, in **NOISE Table 3**, below.

NOISE Table 3
Summary of Measured Noise Levels

Measurement Sites	Measured Noise Levels, dBA			
	Average During Nighttime Hours			Average During Daytime Hours [2]
	L_{eq}	L_{50}	L_{90}	L_{eq}
M1, Center of the project site	41[1]	38[1]	33[1]	49
M2, Boulder Ridge Elementary School	36[3]	33[3]	29[3]	49

Source: VSE 2005b, AFC § 8.7.2.2; Tables 8.7-3, 8.7-4
[1.] Staff calculations of average of four quietest consecutive hours of the nighttime
[2.] Staff calculation of average L_{eq} of the daytime hours at locations M1 and M2
[3.] Results of the 15-minute measurement at 1:53 a.m.

DIRECT IMPACTS AND MITIGATION

Noise impacts associated with the project can be created by short-term construction activities, and by normal long-term operation of the power plant.

Construction Impacts and Mitigation

Construction noise is usually considered a temporary phenomenon. Construction of the SVEP is expected to be typical of other power plants in terms of schedule, equipment used, and other types of activities (VSE 2005b, AFC § 8.7.3.2.1).

Compliance with LORS

Construction of an industrial facility such as a power plant is typically noisier than permissible under usual noise ordinances. In order to allow the construction of new facilities, construction noise during certain hours of the day is commonly exempt from enforcement by local ordinances. (The Riverside County Code only limits the hours during which construction may occur, placing no limit on the noise level itself (Riverside County 2006b).)

The applicant has predicted construction noise levels; they are summarized here in **NOISE Table 4**. Note that, while the applicant provided estimates at distances of 375 feet and 1,500 feet, staff has translated these figures into predicted noise level at 1,000 feet (Menifee Valley Ranch), the sensitive residential receptor location.

NOISE Table 4: Predicted Construction Noise Levels

Receptor/Distance	Highest Construction Noise Level (dBA L_{eq})	Measured Existing Ambient	Cumulative	Change
Menifee Valley Ranch/1,000 feet	62	49	62	+13
M2/3,000 feet	53	49	54	+5

Source: VSE 2005b, AFC Table 8.7-6; and staff calculations

The Riverside County General Plan Noise Element does not limit the loudness of construction noise, but staff compares the projected noise levels to the ambient. Since construction noise typically varies continually with time, it is most appropriately measured by, and compared to, the L_{eq} (energy average) metric. As seen in **NOISE Table 4** above, construction noise at the nearest sensitive receptors, the residential units at Menifee Valley Ranch, may reach 62 dBA. The ambient daytime L_{eq} level at this location, as seen in **NOISE Table 4** above, is 49 dBA. The addition of construction noise to the ambient would result in 62 dBA, an increase of 13 dBA over the ambient level. As noted by the applicant (VSE 2005b, AFC § 8.7.3.2.1), the source figures used to produce the above construction noise estimates are from studies conducted 21-26 years ago. Construction equipment has grown noticeably quieter in the intervening years. Also, the predicted construction noise levels are conservative, as the shielding effects of intervening structures are not included in the calculations (VSE 2005b, AFC § 8.7.3.2.1). Staff thus believes that the actual increase in the ambient noise level at this location will be considerably less than 13 dBA. Also, as explained above, noise due to construction activities is usually considered to be insignificant in terms of CEQA compliance if the construction activity is temporary, and use of heavy equipment and noisy activities is limited to daytime hours. Because the SVEP construction noise is temporary in nature and construction activities will occur during daytime hours, the noise effect of plant construction is considered to be less than significant.

As seen in **NOISE Table 4**, the ambient noise level of 49 dBA at monitoring location M2 (near Boulder Ridge Elementary School) when combined with the SVEP construction noise level of 53 dBA L_{eq} at this location, will result in 54 dBA L_{eq}. This is 5 dBA above the ambient level. As described above (under Method and Threshold for Determining Significance), staff regards an increase of up to 5 dBA as a less than significant impact.

The applicant commits to performing noisy construction work during daytime hours as specified by the Riverside County Code, that is, 6 a.m. to 6 p.m. (VSE 2005b, AFC §§ 8.7.3.2.1, 8.7.6.3; Table 8.7-9). This would be in compliance with this code. To ensure that these hours are, in fact, adhered to, staff proposes Condition of Certification **NOISE-6**.

The noise impacts of the SVEP construction activities will comply with the noise LORS and no construction mitigation measures, beyond compliance with these local noise LORS, OSHA and Cal-OSHA requirements, are necessary.

In the event that actual construction noise should annoy nearby workers or residents, staff proposes Conditions of Certification **NOISE-1** and **NOISE-2**, which would establish a Noise Complaint Process that requires the applicant to resolve any problems caused by construction noise.

CEQA Impacts

As explained above, in reality, the calculated increase of 13 dBA in the ambient noise level, due to project construction at Menifee Valley Ranch will be significantly lower since the old and more conservative data was used and the shielding effects of intervening structures were not accounted for in the calculations. Construction noise is

temporary in nature and construction activities will occur during daytime hours. Staff thus concludes that project construction will create no significant adverse impacts at the most noise-sensitive residential receptors. To ensure this, staff proposes Conditions of Certification **NOISE-1** and **NOISE-2**, which would establish a Noise Complaint Process to resolve any complaints regarding construction noise.

As explained above, the noise from the SVEP construction activities at M2 plus the daytime ambient noise level at this location, or 49 dBA, will result in 54 dBA L_{eq}. This is 5 dBA above the ambient level. Staff regards an increase of up to 5 dBA as a less than significant impact. Staff thus concludes that project construction will create no significant adverse noise impacts at the Boulder Ridge Elementary School.

Noise impacts on biological resources are addressed in the **Biological Resources** section of this document.

Linear Facilities

New off-site linear facilities would include a 20-foot-long potable water pipeline, a 20-foot--ong connection to an existing sanitary sewer pipeline, a 20-foot-long reclaimed water supply pipeline, a 750-foot-long connection to the Southern California Gas Company's natural gas pipeline that runs in nearby Menifee Road, a 0.75-mile-long non-reclaimable wastewater pipeline that will run in McLaughlin Road, and a 600-foot-long 115 kV transmission line connected with the Southern California Edison's nearby Valley Substation (VSE 2005b, AFC § 1.1).

Construction of linear facilities typically moves along at a rapid pace, thus not subjecting any one receptor to noise impacts for more than two or three days. Further, the County Noise Ordinance (Riverside County 2006a) limits the hours of construction to daytime hours.

To ensure compliance with the remaining applicable restrictions, staff proposes Condition of Certification **NOISE-6**.

Vibration

The only construction operation likely to produce vibration that could be perceived off-site would be pile driving. The applicant anticipates that pile driving will not be required for construction of the SVEP (VSE 2005b, AFC, § 8.7.3.2.2). Therefore no vibration impacts are expected during construction.

Worker Effects

The applicant has acknowledged the need to protect construction workers from noise hazards, and has recognized those applicable LORS that would protect construction workers (VSE 2005b, AFC Table 8.7-9; §§ 8.7.3.2.3, 8.7.6.1.2, 8.7.6.2.1). To ensure that construction workers are, in fact, adequately protected, staff has proposed Condition of Certification **NOISE-3**.

Operation Impacts and Mitigation

The primary noise sources of the SVEP include the gas turbine generators, gas turbine air inlets, exhaust stacks, wet cooling tower, natural gas fuel compressor, electrical

transformers, and various pumps and fans. Staff compares the projected project noise with applicable LORS, in this case, the Noise Element of the Riverside County General Plan. In addition, staff evaluates any increase in noise levels at sensitive receptors due to the project in order to identify any significant adverse impacts.

Proposed noise mitigation measures include the following equipment for each of the five gas turbine generator units (VSE 2005b, AFC § 8.7.3.3.3):

- additional noise barriers around gas turbine enclosures;
- increased inlet air filter/ventilation silencing;
- increased stack silencing;
- increased thickness of SCR plate steel;
- additional noise barriers around SCR inlet and expansion joint;
- low noise, slow speed cooling tower fans and motors;
- cooling tower noise barriers and/or splash noise attenuators;
- additional cooling tower noise barriers; and
- silencers and/or enclosures on auxiliary equipment.

In addition, the applicant plans to avoid the creation of annoying tonal (pure-tone) noises by balancing the noise emissions of various power plant features during plant design (VSE 2005b, AFC § 8.7.3.3.4).

Compliance with LORS

The applicant performed noise modeling to determine the project's noise impacts on sensitive receptors (VSE 2005b, AFC § 8.7.3.3.3, Table 8.7-8). Project operating noise at Menifee Valley Ranch (the nearest noise-sensitive residences, 1,000 feet east of the project site) is predicted to be approximately 54 dBA. Staff calculations estimate this to be 44 dBA at M2 (Boulder Ridge Elementary School, 3,000 feet south of the project site).

The average nighttime ambient noise level at Menifee Valley Ranch is lower than the average daytime level at that location, so staff compares nighttime levels to evaluate the project noise impact at this location, when people are sleeping and more likely to be bothered by excessive noise. Chapter 7 of the Riverside County General Plan, Noise Element limits nighttime exterior noise levels at residential receptors to 45 dBA 10-minute L_{eq} (**NOISE Table 2** above). The applicant predicts that the nighttime ambient noise levels for the more developed suburban area that the project is becoming would be expected to be close to 45 dBA (VSE 2005b, AFC § 8.7.3.3.3, p. 8.7-13). This value will represent the average noise level in the area when the SVEP becomes operational. Staff thus uses this value for the average of the four quietest consecutive hours of the

nighttime ambient noise levels at Menifee Valley Ranch, to evaluate the project's operational noise impact at this residential development.[3]

Combining the ambient noise level of 45 dBA L_{eq} with the project noise level of 54 dBA at Menifee Valley Ranch will result in 55 dBA L_{eq}, 10 dBA above the LORS. This violates the nighttime threshold of the County Noise Element and shall be mitigated to the acceptable level of 45 dBA L_{eq} or less. To ensure compliance, staff proposes Conditions of Certification **NOISE-1, NOISE-2** and **NOISE-4**.

Staff uses the daytime ambient noise levels, when students are in school, to evaluate the project noise impact at Boulder Ridge Elementary School (monitoring location M2). As seen in **NOISE Table 3** above, the average daytime ambient noise level at this location is estimated to be 49 dBA L_{eq}. Also as seen above, staff has calculated the project's operational noise level at M2 to be 44 dBA. The project noise level of 44 dBA combined with the ambient level of 49 dBA L_{eq} will result in 50 dBA L_{eq} at M2. This is 15 dBA below the 65 dBA limit required by the County Noise Element for daytime noise levels (see **NOISE Table 2**). Therefore, noise due to the operations of the SVEP at M2 will be in compliance with the local noise LORS and no noise-related mitigation is necessary.

Staff reviewed the noise recommendations of the Riverside County's document (Riverside County 2007a), items 10.20 (Exterior Noise Levels), 10.21 (Noise Monitoring Report) and 10.35 (Residential Noise Standards), and determined that these recommendations are met in this staff assessment by staff's proposed Conditions of Certifications **NOISE-1, NOISE-2** and **NOISE-4**. Staff recommends no further response to this document in the area of Noise.

CEQA Impacts

Power plant noise is unique. A power plant operates as, essentially, a steady, continuous, broadband noise source, unlike the intermittent sounds that comprise the majority of the noise environment. As such, power plant noise contributes to, and becomes part of, the background noise level, or the sound heard when most intermittent noises cease. Where power plant noise is audible, it will tend to define the background noise level. For this reason, staff compares the projected power plant noise to the existing ambient background (L_{90}) noise levels at the affected sensitive receptors. If this comparison identifies a significant adverse impact, then feasible mitigation must be incorporated in the project to reduce or remove the impact.

In most cases, a power plant will be intended to operate around the clock for much of the year. Nighttime operation of a peaking power plant such as the SVEP, though rare, could occasionally occur, which could annoy nearby residences. Staff evaluates project noise emissions by comparing them to the nighttime ambient background level; this assumes the potential for annoyance due to power plant noise is greatest at night when residents are trying to sleep. Nighttime ambient noise levels are typically lower than the daytime levels; differences in background noise levels of 5 to 10 dBA are common. Staff

[3] Staff averaged ambient figures from the Palomar Power Project (01-AFC-24), the Malburg Generating Station Project (01-AFC-25), the Roseville Energy Park Project (03-AFC-1) and the MID EGS Ripon Project (03-SPPE-1), and arrived at about 45 dBA for the SVEP, similar to the applicant's estimate.

believes it is prudent to average the lowest nighttime hourly background noise level values to arrive at a reasonable baseline for comparison with the project's predicted noise level.

Adverse impacts, as defined in CEQA, can be detected by comparing predicted power plant noise levels to the ambient nighttime background noise levels at the nearest sensitive receptors (Menifee Valley Ranch), as shown above.

Combining the ambient noise level of 45 dBA with the project noise level of 54 dBA at Menifee Valley Ranch will result in 55 dBA, 10 dBA above the ambient. As described above (under Method and Threshold for Determining Significance), staff regards an increase of up to 5 dBA as a less than significant impact. An increase between 5 and 10 dBA should be considered adverse, but may be either significant or insignificant, depending on the particular circumstances of a case, such as the amount by which the ambient noise level will be exceeded and land use designation of the affected receptor. An increase of 10 dBA, in a relatively quiet nighttime environment such as that encompassing Menifee Valley Ranch, would typically represent a significant impact. Staff therefore believes that an increase of 10 dBA amounts to a significant impact and requires mitigation to an acceptable level. As described above, staff requires the applicant to reduce the combined noise level (project plus ambient) at the Menifee Valley Ranch by 10 dBA (under Compliance with LORS) by complying with the requirements of Conditions of Certification **NOISE-1, NOISE-2** and **NOISE-4**. This will mitigate the noise impact by 10 dBA. Thus, with implementation of these conditions, staff can conclude that the project operational noise will create no adverse impact at the most sensitive residential receptors.

The project noise level of 44 dBA at M2 when combined with the ambient level of 49 dBA at this location will result in 50 dBA, 1 dBA above the ambient. Such an increase is not noticeable. Staff therefore considers the impact of this increase to be less than significant.

Tonal Noises

One possible source of annoyance would be strong tonal noises. Tonal noises are individual sounds (such as pure tones) that, while not louder than permissible levels, stand out in sound quality. The applicant plans to address overall noise in design, and to take appropriate measures, as necessary, to eliminate tonal noises as possible sources of annoyance (VSE 2005b, AFC § 8.7.3.3.4). To ensure that tonal noises do not cause annoyance, staff proposes Condition of Certification **NOISE-4**.

Linear Facilities

All water and gas piping will lie underground, and will be silent during operation. Noise effects from the electrical interconnection line typically do not extend beyond the right-of-way easement of the line, and will thus be inaudible to any receptors.

Vibration

Vibration from an operating power plant could be transmitted by two chief means; through the ground (groundborne vibration), and through the air (airborne vibration).

The operating components of a simple cycle power plant consist of high-speed gas turbines, compressors, and various pumps. All of these pieces of equipment must be carefully balanced in order to operate; permanent vibration sensors are attached to the turbines and generators. The applicant explains that gas turbine generator facilities using the GE LM6000 machine have not resulted in ground or airborne vibration impacts and it is not anticipated that GE Energy's LMS100 technology would differ considerably in its ability to produce ground or airborne vibration (VSE 2005b, AFC § 8.7.3.3.5). Based on experience with numerous previous projects employing similar equipment, Energy Commission staff agrees with this estimate, and agrees with the applicant that groundborne vibration from the SVEP will be undetectable by any likely receptor.

Airborne vibration (low frequency noise) can rattle windows and objects on shelves, and can rattle the walls of lightweight structures. The SVEP's chief source of airborne vibration would be the gas turbines' exhaust. In a power plant such as the SVEP, however, the exhaust must pass through the selective catalytic reduction (SCR) modules and the stack silencers before it reaches the atmosphere. The SCRs act as efficient mufflers; the combination of SCR units and stack silencers makes it highly unlikely that the SVEP would cause perceptible airborne vibration effects.

Worker Effects

The applicant has acknowledged the need to protect plant operating and maintenance workers from noise hazards, and has committed to comply with applicable LORS (VSE 2005b, AFC § 8.7.3.3.1). Signs would be posted in areas of the plant with noise levels exceeding 85 dBA (the level that OSHA recognizes as a threat to workers' hearing), and hearing protection would be required. To ensure that plant operation and maintenance workers are, in fact, adequately protected, Energy Commission staff has proposed Condition of Certification **NOISE-5**.

CUMULATIVE IMPACTS AND MITIGATION

Section 15130 of the CEQA Guidelines (Cal. Code Regs., tit. 14) requires a discussion of cumulative environmental impacts. Cumulative impacts are two or more individual impacts that, when considered together, are considerable or that compound or increase other environmental impacts. The CEQA Guidelines require that the discussion reflect the severity of the impacts and the likelihood of their occurrence, but need not provide as much detail as the discussion of the impacts attributable to the project alone.

According to the AFC (VSE 2005b, AFC § 8.7.4), the area surrounding the SVEP site has been planned for industrial and residential suburban growth, which are taking place at a rapid pace. Included among new nearby projects are, the Inland Empire Energy Center approximately 0.5 mile to the northwest, and the Menifee Valley Ranch planned development to the east of the SVEP site. Both of these projects have recently started construction. The SVEP, therefore, in combination with many other projects, will result in increases in project area ambient noise. However, the cumulative impacts of this noise are not expected to be significant and adverse, because appropriate planning and mitigation measures are applied to the other new developments as they are to the SVEP.Given this planned regional approach to noise control, staff believes it unlikely

that the SVEP, combined with other new noise producing developments, would produce significant cumulative noise impacts during project construction or operation.

FACILITY CLOSURE

In the future, upon closure of the SVEP, all operational noise from the project would cease, and no further adverse noise impacts from operation of the SVEP would be possible. The remaining potential temporary noise source is the dismantling of the structures and equipment, and any site restoration work that may be performed. Since this noise would be similar to that caused by the original construction, it can be treated similarly. That is, noisy work could be performed during daytime hours, with machinery and equipment properly equipped with mufflers. Any noise LORS that were in existence at that time would apply. Applicable conditions of certification included in the Energy Commission decision would also apply unless modified.

CONCLUSIONS

The resulting noise levels from the operation of the SVEP would have to be mitigated to comply with the Noise Element of the Riverside County General Plan and CEQA requirements at the above identified sensitive residential receptors. Staff has proposed conditions of certification below in order to ensure applicant's compliance with these mitigations.

The SVEP, if built and operated in conformance with these conditions, would comply with all applicable noise and vibration LORS for both operations and construction, and would produce no significant adverse noise impacts on people within the affected area including the minority population, either directly or cumulatively.

PROPOSED CONDITIONS OF CERTIFICATION

NOISE-1 At least 15 days prior to the start of ground disturbance, the project owner shall notify all residents within one-half mile of the site and the linear facilities, by mail or other effective means, of the commencement of project construction. At the same time, the project owner shall establish a telephone number for use by the public to report any undesirable noise conditions associated with the construction and operation of the project, and include that telephone number in the above notice. If the telephone is not staffed 24 hours per day, the project owner shall include an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended. This telephone number shall be posted at the project site during construction in a manner visible to passersby. This telephone number shall be maintained until the project has been operational for at least one year.

Verification: Prior to ground disturbance, the project owner shall transmit to the Compliance Project Manager (CPM) a statement, signed by the project owner's project manager, stating that the above notification has been performed, and describing the method of that notification, verifying that the telephone number has been established and posted at the site, and giving that telephone number.

NOISE COMPLAINT PROCESS

NOISE-2 Throughout the construction and operation of the SVEP, the project owner shall document, investigate, evaluate, and attempt to resolve all project-related noise complaints. The project owner or authorized agent shall:

- Use the Noise Complaint Resolution Form (below), or a functionally equivalent procedure acceptable to the CPM, to document and respond to each noise complaint;
- Attempt to contact the person(s) making the noise complaint within 24 hours;
- Conduct an investigation to determine the source of noise related to the complaint;
- If the noise is project related, take all feasible measures to reduce the noise at its source; and
- Submit a report documenting the complaint and the actions taken. The report shall include: a complaint summary, including final results of noise reduction efforts; and if obtainable, a signed statement by the complainant, stating that the noise problem is resolved to the complainant's satisfaction.

Verification: Within five days of receiving a noise complaint, the project owner shall file a copy of the Noise Complaint Resolution Form, with the County of Riverside Transportation and Land Management Agency and the CPM, documenting the resolution of the complaint. If mitigation is required to resolve a complaint, and the complaint is not resolved within a three-day period, the project owner shall submit an updated Noise Complaint Resolution Form when the mitigation is implemented.

NOISE-3 The project owner shall submit to the CPM for review and approval a noise control program, and a statement, signed by the project owner's project manager, verifying that the noise control program will be implemented throughout construction of the project. The noise control program shall be used to reduce employee exposure to high noise levels during construction and also to comply with applicable OSHA and Cal-OSHA standards.

Verification: At least 30 days prior to the start of ground disturbance, the project owner shall submit to the CPM the noise control program and the project owner's project manager's signed statement. The project owner shall make the program available to Cal-OSHA upon request.

NOISE RESTRICTIONS

NOISE-4 The project design and implementation shall include appropriate noise mitigation measures adequate to ensure that operation of the project will not cause noise levels due to plant operation plus ambient, during the four quietest consecutive hours of the nighttime to exceed an average of 45 dBA L_{eq} measured near the western edge of Menifee Valley Ranch, east of Menifee Road. No new pure-tone components may be caused by the project.

No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints.

The measurement of power plant noise for the purposes of demonstrating compliance with this condition of certification may alternatively be made at a location, acceptable to the CPM, closer to the plant (e.g., 400 feet from the plant boundary) and this measured level then mathematically extrapolated to determine the plant noise contribution at the affected residence. The character of the plant noise shall be evaluated at the affected residential location (Menifee Valley Ranch) to determine the presence of pure tones or other dominant sources of plant noise.

A. When the project first achieves a sustained output of 90 percent or greater of rated capacity, the project owner shall conduct a 25-hour community noise survey at the Menifee Valley Ranch monitoring site, or at a closer location acceptable to the CPM. This survey shall be performed during power plant operation and shall also include measurement of one-third octave band sound pressure levels to determine whether new pure-tone noise components have been caused by the project.

B. If the results from the noise survey indicate that the power plant average noise level (L_{eq}) at the affected receptor site exceeds the above value during the four quietest consecutive hours of the nighttime, mitigation measures shall be implemented to reduce noise to a level of compliance with this limit.

C. If the results from the noise survey indicate that pure tones are present, mitigation measures shall be implemented to eliminate the pure tones.

Verification: The survey shall take place within 30 days of the project first achieving a sustained output of 90 percent or greater of rated capacity. Within 15 days after completing the survey, the project owner shall submit a summary report of the survey to the CPM. Included in the survey report will be a description of any additional mitigation measures necessary to achieve compliance with the above listed noise limit, and a schedule, subject to CPM approval, for implementing these measures. When these measures are in place, the project owner shall repeat the noise survey.

Within 15 days of completion of the new survey, the project owner shall submit to the CPM a summary report of the new noise survey, performed as described above and showing compliance with this condition.

NOISE-5 Following the project first achieving a sustained output of 90 percent or greater of rated capacity, the project owner shall conduct an occupational noise survey to identify the noise hazardous areas in the facility.

The survey shall be conducted by a qualified person in accordance with the provisions of Title 8, California Code of Regulations, sections 5095-5099 and Title 29, Code of Federal Regulations, section 1910.95. The survey results shall be used to determine the magnitude of employee noise exposure.

The project owner shall prepare a report of the survey results and, if necessary, identify proposed mitigation measures that will be employed to comply with the applicable California and federal regulations.

Verification: Within 30 days after completing the survey, the project owner shall submit the noise survey report to the CPM. The project owner shall make the report available to OSHA and Cal-OSHA upon request.

CONSTRUCTION TIME RESTRICTIONS

NOISE-6 Heavy equipment operation and noisy construction work relating to any project features shall be restricted to the times of day delineated below, unless a special permit has been issued by the County of Riverside:

Any Day	6 a.m. to 6 p.m.

Haul trucks and other engine-powered equipment shall be equipped with mufflers that meet all applicable regulations. Haul trucks shall be operated in accordance with posted speed limits. Truck engine exhaust brake use shall be limited to emergencies.

Verification: Prior to ground disturbance, the project owner shall transmit to the CPM a statement acknowledging that the above restrictions will be observed throughout the construction of the project.

EXHIBIT 1 - NOISE COMPLAINT RESOLUTION FORM

Sun Valley Energy Project
(05-AFC-3)

NOISE COMPLAINT LOG NUMBER _____

Complainant's name and address:

Phone number: _____

Date complaint received: _____
Time complaint received: _____

Nature of noise complaint:

Definition of problem after investigation by plant personnel:

Date complainant first contacted: _____

Initial noise levels at 3 feet from noise source _____ dBA Date: _____

Initial noise levels at complainant's property: _____ dBA Date: _____

Final noise levels at 3 feet from noise source: _____ dBA Date: _____

Final noise levels at complainant's property: _____ dBA Date: _____

Description of corrective measures taken:

Complainant's signature: _____ Date: _____

Approximate installed cost of corrective measures: $ _____
Date installation completed: _____
Date first letter sent to complainant: _____ (copy attached)
Date final letter sent to complainant: _____ (copy attached)

This information is certified to be correct:

Plant Manager's Signature: _____

(Attach additional pages and supporting documentation, as required).

REFERENCES

Riverside County 2006a — Riverside County General Plan, Chapter 7 Noise Element.

Riverside County Code 2006a — Riverside County Code, Title 15, Chapter 15.04, Section 15.04.020.

Riverside County 2007a — Advisory Conditional Use Permit for the Sun Valley Energy Project. March 13, 2007.

VSE (Valle del Sol Energy, LLC). 2005b. Application for Certification for Sun Valley Energy Project, Volumes 1 and 2. Submitted to the California Energy Commission, December 1, 2005.

NOISE APPENDIX A
FUNDAMENTAL CONCEPTS OF COMMUNITY NOISE

To describe noise environments and to assess impacts on noise sensitive area, a frequency weighting measure, which simulates human perception, is customarily used. It has been found that A-weighting of sound intensities best reflects the human ear's reduced sensitivity to low frequencies and correlates well with human perceptions of the annoying aspects of noise. The A-weighted decibel scale (dBA) is cited in most noise criteria. Decibels are logarithmic units that conveniently compare the wide range of sound intensities to which the human ear is sensitive. **Noise Table A1** provides a description of technical terms related to noise.

Noise environments and consequences of human activities are usually well represented by an equivalent A-weighted sound level over a given time period (L_{eq}), or by average day and night A-weighted sound levels with a nighttime weighting of 10 dBA (L_{dn}). Noise levels are generally considered low when ambient levels are below 45 dBA, moderate in the 45 to 60 dBA range, and high above 60 dBA. Outdoor day-night sound levels vary over 50 dBA depending on the specific type of land use. Typical L_{dn} values might be 35 dBA for a wilderness area, 50 dBA for a small town or wooded residential area, 65 to 75 dBA for a major metropolis downtown (e.g., San Francisco), and 80 to 85 dBA near a freeway or airport. Although people often accept the higher levels associated with very noisy urban residential and residential-commercial zones, they nevertheless are considered to be levels of noise adverse to public health.

Various environments can be characterized by noise levels that are generally considered acceptable or unacceptable. Lower levels are expected in rural or suburban areas than what would be expected for commercial or industrial zones. Nighttime ambient levels in urban environments are about seven decibels lower than the corresponding average daytime levels. The day-to-night difference in rural areas away from roads and other human activity can be considerably less. Areas with full-time human occupation that are subject to nighttime noise, which does not decrease relative to daytime levels, are often considered objectionable. Noise levels above 45 dBA at night can result in the onset of sleep interference effects. At 70 dBA, sleep interference effects become considerable (Effects of Noise on People, U.S. Environmental Protection Agency, December 31, 1971).

In order to help the reader understand the concept of noise in decibels (dBA), **Noise Table A2** has been provided to illustrate common noises and their associated sound levels, in dBA.

Noise Table A1 Definition of Some Technical Terms Related to Noise	
Terms	**Definitions**
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a Sound Level Meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this testimony are A-weighted.
L_{10}, L_{50}, & L_{90}	The A-weighted noise levels that are exceeded 10%, 50%, and 90% of the time, respectively, during the measurement period. L_{90} is generally taken as the background noise level.
Equivalent Noise Level, L_{eq}	The energy average A-weighted noise level during the Noise Level measurement period.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 4.8 decibels to levels in the evening from 7 p.m. to 10 p.m., and after addition of 10 decibels to sound levels in the night between 10 p.m. and 7 a.m.
Day-Night Level, L_{dn} or DNL	The Average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10 p.m. and 7 a.m.
Ambient Noise Level	The composite of noise from all sources, near and far. The normal or existing level of environmental noise at a given location.
Intrusive Noise	That noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.
Pure Tone	A pure tone is defined by the Model Community Noise Control Ordinance as existing if the one-third octave band sound pressure level in the band with the tone exceeds the arithmetic average of the two contiguous bands by five decibels (dB) for center frequencies of 500 Hz and above, or by 8 dB for center frequencies between 160 Hz and 400 Hz, or by 15 dB for center frequencies less than or equal to 125 Hz.

Source: Guidelines for the Preparation and Content of Noise Elements of the General Plan, Model Community Noise Control Ordinance, California Department of Health Services 1976, 1977.

Noise Table A2 Typical Environmental and Industry Sound Levels			
Noise Source (at distance)	A-Weighted Sound Level in Decibels (dBA)	Noise Environment	Subjective Impression
Civil Defense Siren (100')	140-130		Pain Threshold
Jet Takeoff (200')	120		Very Loud
Very Loud Music	110	Rock Music Concert	
Pile Driver (50')	100		
Ambulance Siren (100')	90	Boiler Room	
Freight Cars (50')	85		
Pneumatic Drill (50')	80	Printing Press Kitchen with Garbage Disposal Running	Loud
Freeway (100')	70		Moderately Loud
Vacuum Cleaner (100')	60	Data Processing Center Department Store/Office	
Light Traffic (100')	50	Private Business Office	
Large Transformer (200')	40		Quiet
Soft Whisper (5')	30	Quiet Bedroom	
	20	Recording Studio	
	10		Threshold of Hearing

Source: Handbook of Noise Measurement, Arnold P.G. Peterson, 1980

Subjective Response to Noise

The adverse effects of noise on people can be classified into three general categories:

- Subjective effects of annoyance, nuisance, dissatisfaction.
- Interference with activities such as speech, sleep, and learning.
- Physiological effects such as anxiety or hearing loss.

The sound levels associated with environmental noise, in almost every case, produce effects only in the first two categories. Workers in industrial plants can experience noise effects in the last category. There is no completely satisfactory way to measure the subjective effects of noise, or of the corresponding reactions of annoyance and dissatisfaction, primarily because of the wide variation in individual tolerance of noise.

One way to determine a person's subjective reaction to a new noise is to compare the level of the existing (background) noise, to which one has become accustomed, with the level of the new noise. In general, the more the level or the tonal variations of a new noise exceed the previously existing ambient noise level or tonal quality, the less acceptable the new noise will be, as judged by the exposed individual.

With regard to increases in A-weighted noise levels, knowledge of the following relationships can be helpful in understanding the significance of human exposure to noise.

1. Except under special conditions, a change in sound level of one dB cannot be perceived.

2. Outside of the laboratory, a three dB change is considered a barely noticeable difference.

3. A change in level of at least five dB is required before any noticeable change in community response would be expected.

4. A 10 dB change is subjectively heard as an approximate doubling in loudness and almost always causes an adverse community response. (Kryter, Karl D., The Effects of Noise on Man, 1970)

Combination of Sound Levels

People perceive both the level and frequency of sound in a non-linear way. A doubling of sound energy (for instance, from two identical automobiles passing simultaneously) creates a three dB increase (i.e., the resultant sound level is the sound level from a single passing automobile plus three dB). The rules for decibel addition used in community noise prediction are:

Noise Table A3
Addition of Decibel Values

When two decibel values differ by:	Add the following amount to the larger value
0 to 1 dB	3 dB
2 to 3 dB	2 dB
4 to 9 dB	1 dB
10 dB or more	0
Figures in this table are accurate to ± 1 dB.	

Source: Architectural Acoustics, M. David Egan, 1988

Sound and Distance

Doubling the distance from a noise source reduces the sound pressure level by six dB.

Increasing the distance from a noise source 10 times reduces the sound pressure level by 20 dB.

Worker Protection

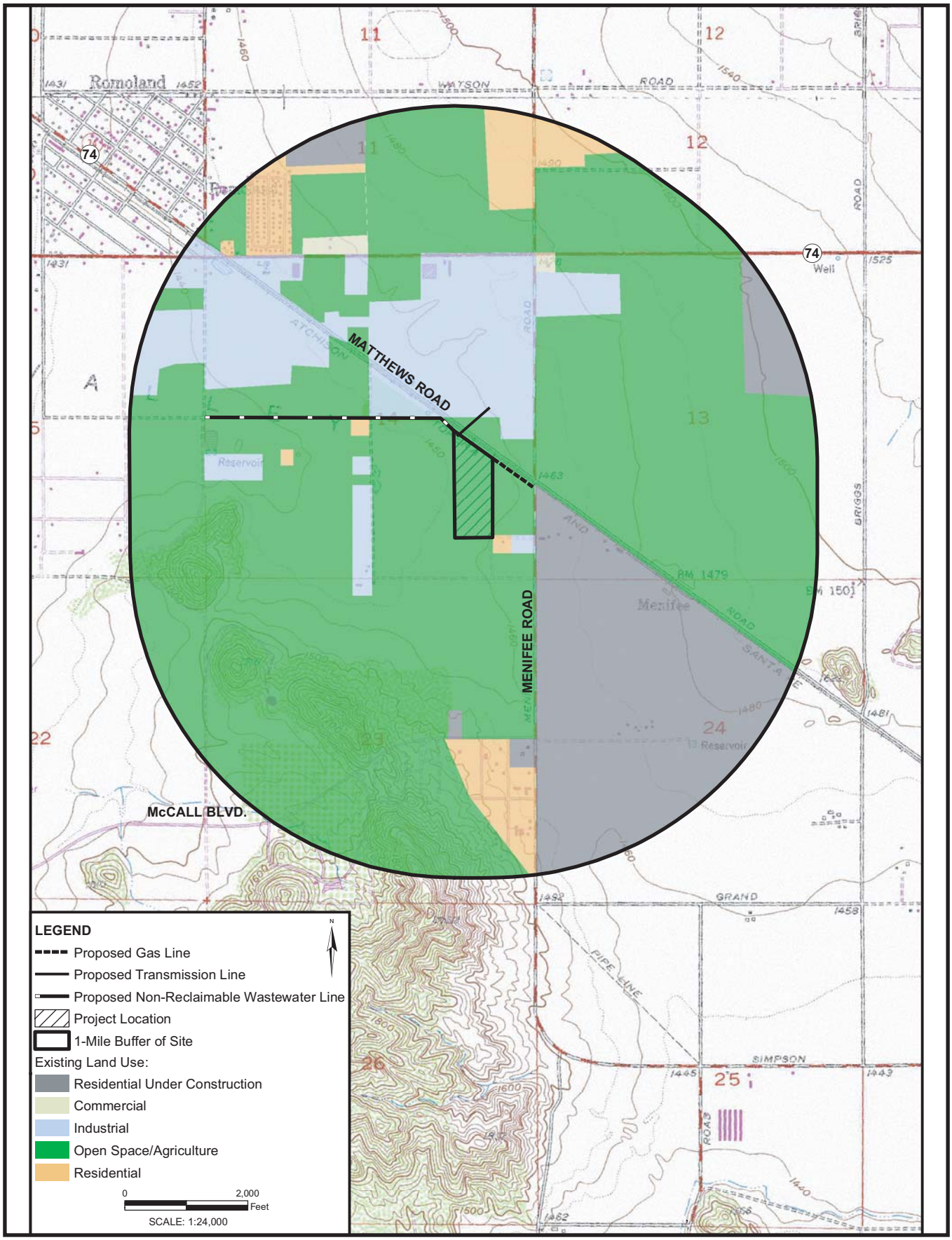
OSHA noise regulations are designed to protect workers against the effects of noise exposure, and list permissible noise level exposure as a function of the amount of time to which the worker is exposed:

Noise Table A4
OSHA Worker Noise Exposure Standards

Duration of Noise (Hrs/day)	A-Weighted Noise Level (dBA)
8.0	90
6.0	92
4.0	95
3.0	97
2.0	100
1.5	102
1.0	105
0.5	110
0.25	115

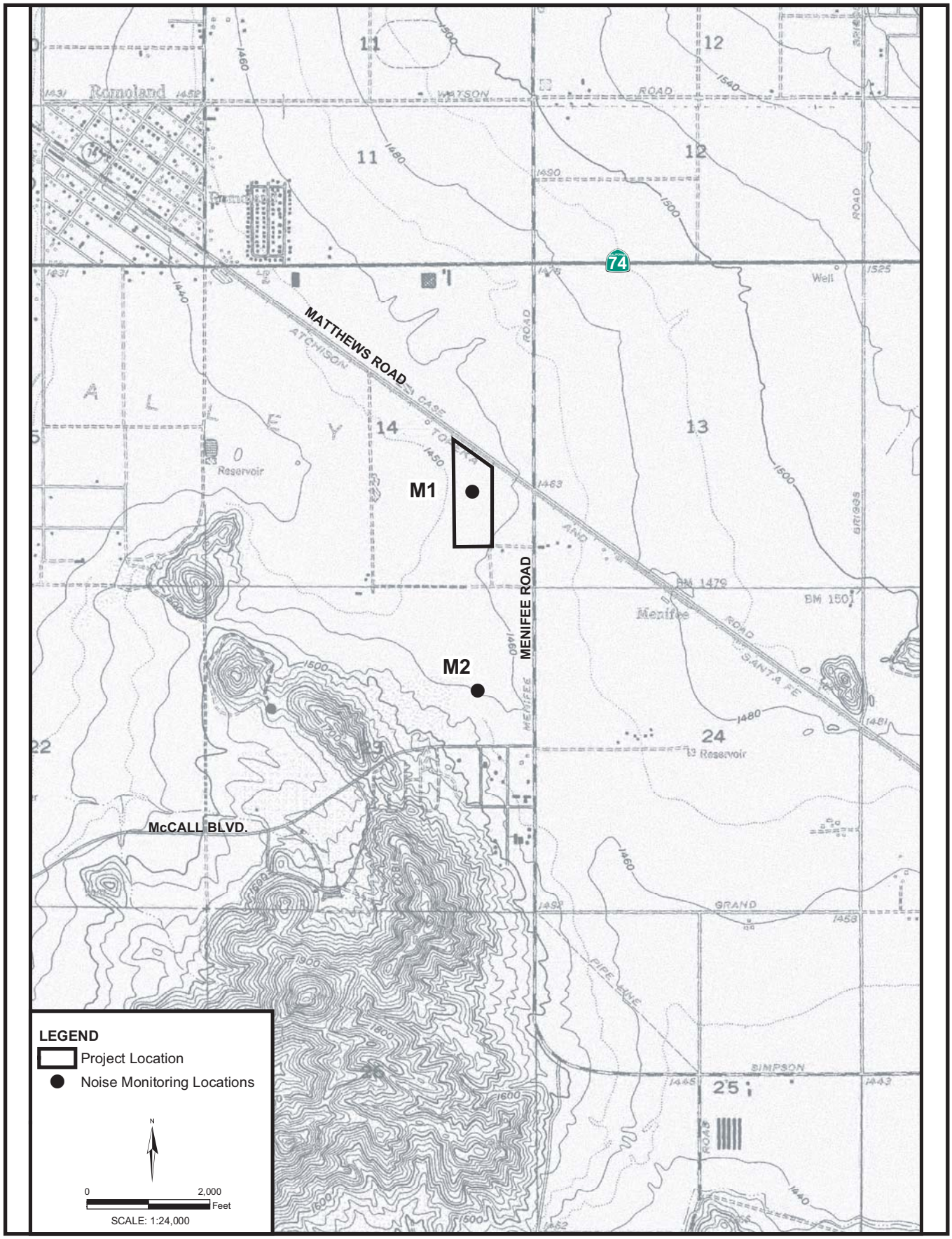
Source: 29 C.F.R. § 1910.95

NOISE AND VIBRATION - FIGURE 1
Sun Valley Project - Existing Land Uses Within One Mile of Project Site



CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, MAY 2006
SOURCE: AFC Figure 8.6-1

NOISE AND VIBRATION - FIGURE 2
Sun Valley Project - Noise Monitoring Locations



CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, MAY 2006
SOURCE: AFC Figure 8.7-1

PUBLIC HEALTH

Obed Odoemelam, Ph.D.

SUMMARY AND CONCLUSIONS

Staff has analyzed the potential public health risks associated with construction and operation of the proposed Sun Valley Energy Project (SVEP) and does not expect that there would be any significant adverse cancer or short- or long-term health effects from the project's toxic emissions and water-borne pathogens if the proposed conditions of certification in this section and the **Air Quality** section are implemented. The toxic pollutants (non-criteria pollutants) considered in this section are pollutants for which there are no established air quality standards. The potential for significant public health impacts from emission of the other group of pollutants for which there are specific air quality standards (criteria pollutants) is discussed in the **Air Quality** sections with particular regard to those whose existing levels exceed their respective air quality standards.

While this **Public Health** analysis shows that with the implementation of the condition to develop a cooling water management plan to control bacterial growth the project-related toxic pollutants would not constitute a significant public health hazard in the project area. However, staff considers it necessary to also consider the findings in the **Air Quality** section with regard to the criteria pollutants. The public health impact from these criteria pollutants should be considered insignificant only if the **Air Quality** staff concludes that the specific **Air Quality** conditions of certification would be adequate to ensure that construction-and operations-related emissions would be at levels that would ensure public exposure below the applicable standards.

Since the public health impacts of non-criteria pollutants would occur at insignificant levels following implementation of staff's recommended conditions of certification there would be no environmental justice concerns in the areas identified in the **Socioeconomics** section as having a minority population of more than fifty percent.

INTRODUCTION

The purpose of this Public Health analysis is to determine if toxic emissions from the proposed Sun Valley Energy Project (SVEP) would have the potential to cause significant adverse public health impacts or violate standards for public health protection in the project area. Toxic pollutants (or "non-criteria pollutants") are pollutants for which there are no specific air quality standards. The other pollutants for which there are such air quality standards are known as "criteria pollutants". If potentially significant health impacts are identified for the non-criteria pollutants considered in this analysis, staff would require mitigation measures to reduce such impacts to insignificant levels.

Although the potential impacts of regulated or criteria air pollutants are discussed in the **Air Quality** section, staff has provided **PUBLIC HEALTH Attachment A** at the end of this section to present specific information on the nature of each air pollutant's respective health effects. The primary discussion in the **Air Quality** section focuses on

the potential for above-standard exposure to criteria pollutants and the regulatory measures necessary to mitigate these. This required mitigation also has the effect of reducing the impacts of the non-criteria pollutants ensuring overall public health protection when the project is operating. The impacts on public and worker health from accidental releases of hazardous materials are examined in the **Hazardous Materials Management** section. Health effects from electric and magnetic fields are addressed in the **Transmission Line Safety and Nuisance** section. Pollutants released from the project in wastewater streams are discussed in the **Soils and Water Resources** section. Facility releases in the form of hazardous and non-hazardous wastes are addressed in the **Waste Management** section.

LAWS, ORDINANCES, REGULATION, AND STANDARDS

Public Health Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable Law	Description
Federal	
Clean Air Act section 112 (42 U.S. Code section 7412)	Requires new sources which emit more than ten tons per year of any specified hazardous air pollutant (HAP) or more than 25 tons per year of any combination of HAPs to apply Maximum Achievable Control Technology (MACT).
State	
California Health and Safety Code sections 39650 et seq.	These sections mandate the California Air Resources Board (CARB) and the Department of Health Services to establish safe exposure limits for toxic air pollutants and identify pertinent best available control technologies. They also require that the new source review rule for each air pollution control district include regulations that require new or modified procedures for controlling the emission of toxic air contaminants.
California Health and Safety Code section 41700	This section states that “no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property.”
California Code of Regulations, Title 22, Section 60306	Requires that whenever a cooling system uses recycled water in conjunction with an air conditioning facility and a cooling tower that creates a mist that could come into contact with employees or members of the public, a drift eliminator shall be used and chlorine, or other, biocides shall be used to treat the cooling system re-circulating water to minimize the growth of Legionella and other micro-organisms.
Local	
South Coast Air Quality Management District Rules 1401 and 1470	Rule 1401 specifies the allowable risks for new or modified sources of toxic air contaminants. Implementation usually requires use of best Available Control Technology (BACT). Rule 1407 limits diesel particulate and other criteria emissions from identifiable sources.

SETTING

This section describes the environment in the vicinity of the proposed project site from the public health perspective. Features of the natural environment, such as meteorology and terrain, affect the project's potential for causing impacts on public health. An emission plume from a facility may affect elevated areas before lower terrain areas, because of a reduced opportunity for atmospheric mixing. Consequently, areas of elevated terrain can often be subjected to increased pollutant impacts. Also, the types of land use near a site influences population density and, therefore, the number of individuals potentially exposed to the project emissions. Additional factors affecting potential public health impacts include existing air quality and environmental site contamination.

SITE AND VICINITY DESCRIPTION

According to the information from the SVEP applicant, Valle del Sol Energy, LLC (VSE), the proposed SVEP site near the unincorporated City of Romoland is a 20-acre parcel zoned for industrial, commercial, and manufacturing uses (VSE 2005a, pp. 1-1, 2-1, 8.1-1, 8.6-1 through 8.6-7, and 8.9-1). The surrounding land is presently used for agriculture, railroad tracks, and rural residences the nearest of which is approximately 0.31 miles from the proposed SVEP site.

The applicant provided a listing of the sensitive receptor locations within a two-mile radius of the site together with their respective directions and distances from the site (VSE 2005a, pp 8.9-1 and 8.9-2). These are mostly schools and pre-schools. The applicant also provided a listing of sensitive receptor locations within a six-mile radius and identified them as mainly daycare centers, schools, nursing homes, and medical centers (VSE 2005a, Appendix 8.9A). A sensitive receptor location, for purposes of a public health analysis, is an establishment that houses sensitive individuals such as children, the elderly, school pupils, and individuals with respiratory diseases. Since the individuals in these locations are more sensitive than the average individual to the effects of environmental pollutants, their response is specifically considered in establishing the safe exposure limits for such pollutants, as noted earlier. However, staff holds all projects to the same health standards, whether proposed for a major population center, with many sensitive receptors, or a sparsely populated area with relatively few.

METEOROLOGY

Meteorological conditions, including wind speed, wind direction, and atmospheric stability, affect the extent to which pollutants are dispersed into ambient air as well as the direction of pollutant transport. This, in turn, affects the level of public exposure to emitted pollutants and associated health risks. When wind speeds are low and the atmosphere is stable, for example, dispersion is reduced and localized exposure may be increased.

The proposed project site is within the South Coast Air Basin ("basin"), which is a coastal plain with connecting broad valleys and low hills. The topography of the site vicinity is essentially flat with an average elevation of 1450 feet above sea level. Although the project is in an air basin with a semi-arid climate, the climate at the specific

project site is mild, as it is tempered by daytime onshore and nighttime offshore sea breezes. This moderating sea influence results in winter and summer temperatures that usually vary by less than 25°F. The mean temperature is 62.6°F. Most of the rainfall occurs from November through April and ranges from 9 inches to 14 inches annually.

Because of winds of low speeds (with little seasonal variation), the atmosphere has a limited capacity to disperse the area's air contaminants horizontally within the basin. Strong atmospheric temperature inversions frequently occur within the basin, especially in the late mornings and early afternoons. These inversions severely limit vertical air mixing and result in the buildup of air pollutants by restricting their movement from the ground level to the upper atmosphere out of the basin.

Atmospheric stability is a measure of the turbulence that influences such pollutant dispersion. Mixing heights (the height above ground level below which the air is well mixed and in which pollutants can be effectively dispersed) are lower during the morning hours because of temperature inversions, which are followed by temperature increases in the warmer afternoons. Staff's **Air Quality** section presents a more detailed discussion of the area's meteorology.

EXISTING AIR QUALITY

The proposed site is within the South Coast Air Quality Management District (SQAQMD), which includes all or portions of Los Angeles, Orange, Riverside, and San Bernardino counties. Using data on average concentrations of toxic pollutants measured at specific air monitoring sites, the health risk from existing pollutant exposures can be evaluated for the South Coast Air Basin. For the toxic pollutants of specific concern in this analysis, the numerical cancer risk from such existing, or background exposures can be estimated from actual measurements. In March, 2000, SCAQMD published results from the Multiple Air Toxics Exposure Study II (MATES II), which together with the earlier MATES I was a comprehensive study of air pollution levels in Southern California through 1999. The background cancer risk calculated by SCAQMD using existing methods was reported as averaging 1400 in one million for the basin (SCAQMD 2000). The study showed that motor vehicles and other mobile sources contributed about 90 percent of the cancer risk with industries and stationary sources contributing about 10 percent. Diesel particulate accounted for the majority (71 percent) of the risk while benzene, 1, 3-butadiene, formaldehyde accounted for 18 percent. Formaldehyde is emitted directly from vehicles and other combustion sources such as the proposed SVEP.

The MATES II results also showed from comparison with findings from the earlier MATES I (of basin-wide pollutant levels before 1990) that the measured background levels of the major pollutants in this group had decreased by between 44 percent and 63 percent within the basin. This improvement is primarily from benzene, and 1, 3-butadiene reductions from the use of reformulated gasoline and secondarily from reduction in hexavalent chromium levels. Use of reformulated gasoline began in the second quarter of 1996. As noted by the applicant (VSE 2005a, p 8.9-2) the 1990-2003 data from the Air resources Board (ARB) points to a continuing decrease in the

background levels of these toxic pollutants of most concern in this analysis. These continued decreases reflect the continued effectiveness of existing SCAQMD control programs.

The noted toxic pollutant-related background risk estimates can be compared with the normal background lifetime cancer risk (from all cancer causes) of one in four, or 250,000 in a million, as will be noted later. The potential risk from SVEP and similar sources should best be assessed in the context of their potential addition to these background risk levels.

As noted in the **Socioeconomics** section, there are specific areas around the proposed project with potential environmental justice concerns because of minority populations of more than fifty percent. For the project to constitute an environmental justice problem in this case, the impacts of concerns will have to (a) be at levels of potential health significance and (b) be significantly higher in the areas of predominantly minority habitation.

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

The following describes staff's method of analyzing potential health impacts and the criteria used to determine their significance.

METHOD OF ANALYSIS

The **Public Health** section of this staff assessment discusses toxic emissions to which the public could be exposed during project construction and routine operation. If toxic contaminants are released into the air or water, people may come into contact with them through inhalation, dermal contact, or ingestion via contaminated food or water.

Air pollutants for which no ambient air quality standards have been set are called non-criteria pollutants. Unlike criteria pollutants such as ozone, carbon monoxide, sulfur dioxide, or nitrogen dioxide, non-criteria pollutants have no ambient (outdoor) air quality standards that specify levels considered safe for everyone.

Since non-criteria pollutants do not have such standards, a process known as a health risk assessment is used to determine if people might be exposed to them at unhealthy levels. The risk assessment procedure consists of the following steps:

- Identification of the types and amounts of hazardous substances that a source could emit into the environment;
- Estimation of worst-case concentrations of project emissions into the environment using dispersion modeling;
- Estimation of the amounts of pollutants to which people could be exposed through inhalation, ingestion, and dermal contact; and
- Characterization of the potential health risks by comparing worst-case exposures to safe standards based on known health effects.

For SVEP and other sources, a screening level risk assessment is initially performed using simplified assumptions intentionally biased toward protection of public health. That is, an analysis is designed that overestimates public health impacts from exposure to the emissions. In reality, it is likely that the actual risks from the project will be much lower than the risks estimated by the screening level assessment. This overestimation is accomplished by identifying conditions that would lead to the highest, or worst-case risks, and then assuming them in the study. The process involves the following:

- using the highest levels of pollutants that could be emitted from the source;
- assuming weather conditions that would lead to the maximum ambient concentration of pollutants;
- using the type of air quality computer models which predict the greatest plausible impacts;
- calculating health risks at the location where the pollutant concentrations are estimated to be highest;
- using health-based standards designed to protect the most sensitive members of the population (i.e., the young, elderly, and those with respiratory illnesses); and
- assuming that an individual's exposure to cancer-causing agents would occur over a 70-year lifetime.

A screening level risk assessment will, at a minimum, include the potential health effects from inhaling hazardous substances. Some facilities may also emit certain substances, which could present a health hazard from non-inhalation pathways of exposure (see California Air Pollution Control Officers Association (CAPCOA) 1993, Table III-5). When these substances are present in facility emissions, the screening level analysis is conducted to include the following additional exposure pathways: soil ingestion, dermal exposure, and mother's milk (CAPCOA 1993, p. III-19).

The risk assessment process addresses three categories of health impacts: acute (short-term) health effects, chronic (long-term) non-cancer effects, and cancer risk (also long-term). Acute health effects result from short-term (one-hour) exposure to relatively high concentrations of pollutants. Acute effects are temporary in nature, and include symptoms such as irritation of the eyes, skin, and respiratory tract.

Chronic health effects are those that result from long-term exposure to lower concentrations of pollutants. The exposure period is considered to be approximately from ten to one hundred percent of a lifetime (from seven to seventy years). Chronic health effects include diseases such as reduced lung function and heart disease.

The analysis for non-cancer health effects compares the maximum project contaminant levels to safe levels called "reference exposure levels" or RELs. These are amounts of toxic substances to which even sensitive people can be exposed and suffer no adverse health effects (CAPCOA 1993, p. III-36). This means that such exposure limits would serve to protect such sensitive individuals as infants, school pupils, the aged, and people suffering from illnesses or diseases, which make them more susceptible to the effects of toxic substance exposure. The RELs are based on the most sensitive adverse health effects reported in the medical and toxicological literature, and include specific

margins of safety, which address the uncertainties associated with inconclusive scientific and technical information available at the time of standard setting. They are, therefore, intended to provide a reasonable degree of protection against hazards that research has not yet identified. Each margin of safety is designed to prevent pollution levels that have been demonstrated to be harmful, as well as to prevent lower pollutant exposures that may pose an unacceptable risk of harm, even if the risk is not precisely identified as to nature or degree. Health protection can be expected if the estimated worst-case exposure is below the relevant reference exposure level. In such a case, an adequate margin of safety is assumed to exist between the predicted exposure and the estimated threshold for toxicity.

Exposure to multiple toxic substances may result in health effects that are equal to, less than, or greater than effects resulting from exposure to the individual chemicals. Only a small fraction of the thousands of potential combinations of chemicals have been tested for the health effects of combined exposures. In conformance with CAPCOA guidelines, the health risk assessment assumes that the effects of the individual substances are additive for a given organ system (CAPCOA 1993, p. III-37). In those cases where the actions may be synergistic (where the effects are greater than the sum), this approach may underestimate the health impact in question.

For carcinogenic substances, the health assessment considers the risk of developing cancer and conservatively includes the previously noted assumption that the individual would be continuously exposed over a 70-year lifetime. The risk that is calculated is not meant to project the actual expected incidence of cancer, but rather a theoretical upper-boundary number based on worst-case assumptions.

Cancer risk is expressed in terms of chances per million of developing cancer and is a function of the maximum expected pollutant concentration, the probability that a particular pollutant will cause cancer (known as “potency factor”, and established by the California Office of Environmental Health Hazard Assessment), and the length of the exposure period. Cancer risks for individual carcinogens are added together to yield the total cancer risk from the source being considered. The conservative nature of the screening assumptions used means that actual cancer risks are likely to be considerably lower than those estimated.

The screening level analysis is performed to assess worst-case public health risks associated with the proposed project. If the screening analysis were to predict a risk of no significance, no further analysis would be necessary. However, if the risk were to be above the significance level, further analysis, using more realistic site-specific assumptions would be performed to obtain a more accurate estimate of the public health risk in question.

SIGNIFICANCE CRITERIA

Commission staff assesses the health effects of exposure to toxic emissions by first considering the impacts on the maximally exposed individual. This individual is the person hypothetically exposed to project emissions at a location where the highest ambient impacts were calculated using worst-case assumptions, as described above. If the potential risk to this individual is below established levels of significance, staff would

consider the potential risk as also insignificant anywhere else in the project area. As described earlier, non-criteria pollutants are evaluated for short-term (acute) and long-term (chronic) non-cancer health effects, as well as cancer (long-term) health effects. The potential significance of project health impacts is determined separately for each of the three categories of health effects.

Acute and Chronic Non-Cancer Health Effects

Staff assesses the significance of non-cancer health effects by calculating a "hazard index" for the exposure being considered. A hazard index is a ratio obtained by comparing exposure from facility emissions to the reference (safe) exposure level for the toxicant. A ratio of less than one would signify a worst-case exposure below the safe level. The hazard indices for all toxic substances with the same types of health effect are added together to yield a total hazard index for the source being evaluated. This total hazard index is calculated separately for acute and chronic effects. A total hazard index of less than one (< 1.0) indicates that the cumulative worst-case exposure would be within safe levels. Under these conditions, health protection would be assumed even for sensitive members of the population. In such a case, staff would assume that there would be no significant non-cancer public health impacts from project operations.

Cancer Risk

Staff relies upon regulations implementing the provisions of Proposition 65, the Safe Drinking Water and Toxic Enforcement Act of 1986 (Health & Safety Code, §§ 25249.5 et seq.) for guidance in establishing the level of significance for its assessed cancer risks. Title 22, California Code of Regulations, section 12703(b) states in this regard, that "the risk level which represents no significant risk shall be one which is calculated to result in one excess case of cancer in an exposed population of 100,000, assuming lifetime exposure." This risk level is equivalent to a cancer risk of ten in one million, or $10x10^{-6}$. An important distinction from the provisions in Proposition 65 is that the Proposition 65 significance level applies separately to each cancer-causing substance, whereas staff determines significance based on the total risk from all cancer-causing chemicals from the source in question. Thus, the manner in which the significance level is applied by staff is more conservative (health-protective) than with Proposition 65.

As noted earlier, the initial risk analysis for a project is normally performed at a screening level, which is designed to overstate actual risks, so that health protection can be ensured. When a screening analysis shows the cancer risks to be above the significance level, refined assumptions would likely result in a lower, more realistic risk estimate. If facility risk, based on refined assumptions, were to exceed the significance level of ten in one million, staff would require appropriate measures to reduce risk to less than significant. If, after all risk reduction measures have been considered, a refined analysis still identifies a cancer risk of greater than ten in one million, staff would deem such risk to be significant, and would not recommend project approval.

IMPACTS

Potential Impacts Of Project's Non-Criteria Pollutants

The health impacts of the non-criteria pollutants of specific concern in this analysis can be assessed separately as construction-phase impacts and operational-phase impacts.

Construction Phase Impacts

Possible construction-phase health impacts, as noted by the applicant (VSE 2005a pp. 8.1-45, 8.1-46, 8.9-6 and Appendix 8.1E), are those from human exposure to the windblown dust from site excavation and grading, and emissions from construction-related equipment. The dust-related impacts may result from exposure to the dust itself as PM10, or PM 2.5, or exposure to any toxic contaminants that might be adsorbed onto the dust particles.

As more fully discussed in the **Waste Management** section, results of the applicant's site contamination assessments (VSE 2005a, pp. 8.14-1 through 8.14-3) show that the proposed site was mostly used for agricultural activities. These activities are not likely to contaminate the site with hazardous substances of potential health concern. Staff, therefore, does not expect construction activities to pose a significant health risk to workers or anyone in the immediate area.

The applicant (VSE 2005a, page 8.1-45, and Appendix 8.1E) has specified the mitigation measures necessary to minimize construction-related fugitive dust as required by SCAQMD Rule 403. The only soil-related construction impacts of potential significance would result from the possible impacts of PM10, or PM 2.5 as a criteria pollutant for the 12-month construction period. As mentioned earlier, the potential for significant impacts from criteria pollutants is assessed in the **Air Quality** section where the requirements for the identified mitigation measures are presented as specific conditions of certification.

The exhaust from diesel-fueled construction and other equipment has been established as a potent human carcinogen. Thus, construction-related emission levels should be regarded as possibly adding to the carcinogenic risk of specific concern in this analysis. Appendix 8.1E-1 (VSE 2005a), presents the diesel emissions from the different types of equipment to be used in the construction phase. The maximum theoretical cancer risk from such diesel exhaust was calculated by the applicant as 0.32 in a million at the maximum impact location at the project fence line, with lower exposures for offsite receptors. Staff considers the recommended control measures (specified in **Air Quality** Condition of Certification as **AQ-SC3** through **AQ-SC5**) as adequate to minimize fugitive dust, and diesel equipment emission from the site, and therefore, mitigate the cancer risk during the 12-month construction period.

Operational Impacts

The main health risk from VSEP operations would be associated with emissions from its combustion turbines, testing of the emergency power generator and fire pump, and evaporative cooling tower. The risk from cooling tower operation was assessed for the proposed use of reclaimed wastewater from the Eastern Municipal Water District. In addition to the toxic substances emitted from the cooling tower, there is specific concern that bacterial growth in the cooling water could lead to potential health effects from human exposure. This is discussed below in the section on cooling tower operation and risk of Legionnaires' disease.

Public Health Table 1 lists the project's toxic emissions and shows how each contributes to the risk estimated from the health risk analysis. For example, the first row

shows that oral exposure to acetaldehyde is not of concern but, if inhaled, may have cancer and chronic (long-term) non-cancer health effects, but not acute (short-term) effects.

As noted in a publication by the South Coast Air Quality Management District (SCAQMD 2000, p. 6), one property that distinguishes the air toxics of concern in this analysis from the criteria pollutants is that the impacts from air toxics tend to be highest in close proximity to the source and quickly drop off with distance. This means that the levels of SVEP's air toxics would be highest in the immediate area and would decrease rapidly with distance. One purpose of this analysis, as previously noted, is to determine whether or not such exposures would be at levels of possible health significance as established using existing assessment methods.

The applicant's estimates of SVEP's potential contribution to the area's carcinogenic and non-carcinogenic pollutants were obtained from a screening-level health risk assessment conducted according to procedures specified in the 1993 CAPCOA guidelines. The results from this assessment (summarized in staff's **Public Health Table 2**) were provided to staff along with documentation of the assumptions used (VSE 2005a pp. 8.1-66 through 8.1-69, 8.9-9 and 8.9-10 and Appendices 8.1-D). This documentation included:

- pollutants considered;
- emission levels assumed for the pollutants involved;
- dispersion modeling used to estimate potential exposure levels;
- exposure pathways considered;
- the cancer risk estimation process;
- hazard index calculation; and
- characterization of project-related risk estimates.

Staff has found these assumptions to be acceptable and has validated the applicant's findings with regard to the numerical public health risk estimates expressed either in terms of the hazard index for each non-carcinogenic pollutant, or a cancer risk for estimated levels of the carcinogenic pollutants. These analyses were conducted to establish the maximum potential for acute and chronic effects on body systems such as the liver, central nervous system, the immune system, kidneys, the reproductive system, the skin and the respiratory system.

As shown in **Public Health Table 2**, the chronic hazard index for the maximally exposed individual is 0.079 while the maximum hazard index for acute effects is 0.015. These values are well below staff's significance criterion of 1.0, suggesting that the pollutants in questions are unlikely to pose a significant risk of chronic or acute non-cancer health effects anywhere in the project area.

Public Health Table 1
Types of Health Impacts and Exposure Routes Attributed to Toxic Emissions

Substance	Oral Cancer	Oral Non-cancer	Inhalation Cancer	Non-cancer (Chronic)	Non-cancer (Acute)
Acetaldehyde			✔	✔	
Acrolein				✔	✔
Ammonia				✔	✔
Arsenic	✔	✔	✔	✔	✔
Benzene			✔	✔	✔
1,3-Butadiene			✔	✔	
Cadmium		✔	✔	✔	
Chromium			✔	✔	
Copper				✔	✔
Ethylbenzene				✔	
Formaldehyde			✔	✔	✔
Hexane				✔	
Lead	✔	✔	✔	✔	
Mercury		✔		✔	✔
Naphthalene		✔		✔	
Nickel			✔	✔	✔
Polynuclear Aromatic Hydrocarbons (PAHs)	✔	✔	✔	✔	
Propylene				✔	
Propylene oxide			✔	✔	✔
Toluene				✔	✔
Xylene				✔	✔
Zinc				✔	

Source: Prepared by staff using reference exposure levels and cancer unit risks from CAPCOA Air Toxics “Hot Spots” Program Revised 1992 Risk Assessment Guidelines, October 1993, SRP 1998, and Office of Environmental Health Hazard Assessment Air Toxics Hot Spots Program Risk Assessment Guidelines.

Public Health Table 2
Operation Hazard/Risk

Type of Hazard/Risk	Hazard Index/Risk	Significance Level	Significant?
Acute Noncancer	0.015	1.0	No
Chronic Noncancer	0.079	1.0	No
Individual Cancer	1.37×10^{-6} (a) 0.08×10^{-6} (b)	10.0×10^{-6}	No

Staff's summary of information from VSE 2005a pp. 8.1-68 and 8.9-9 and Appendix 8.1D.
(a) Risk from normal project operations
(b) Risk from diesel emergency generator testing

The cancer risk to the maximally exposed individual from normal project operation is shown as 1.37 in a million, which is well below staff's significance criterion of 10 in one million for this screening level assessment. Thus, project-related cancer risk from routine operations would be insignificant for all individuals in the project area. Staff notes that the maximum risks from the assessed turbines and cooling towers occur at different locations, so adding these risk estimates together as done in this analysis further adds to the conservatism in the assessment process.

The risk from exposure to the diesel exhaust from testing the project's emergency diesel generator was calculated as 0.08 in one million. As with routine operations, this risk estimate is well below staff's noted cancer significance level of 10 in one million.

The conservatism in these assessments is further reflected in the noted fact that (a) the individual considered is assumed to be exposed at the highest possible levels to all the carcinogenic pollutants from the project for a 70-year lifetime, (b) all the carcinogens are assumed to be equally potent in humans and experimental animals, even when their cancer-inducing abilities have not been established in humans, and (c) humans are assumed to be as susceptible as the most sensitive experimental animal, despite knowledge that cancer potencies often differ between humans and experimental animals. Only a relatively few of the many environmental chemicals identified so far as capable of inducing cancer in animals have been shown to also cause cancer in humans.

Cooling Tower-Related Risk of Legionnaires' disease

Legionella is a bacterium that is ubiquitous in natural aquatic environments and is also widely distributed in man-made water systems. It is the principal cause of legionellosis, otherwise known as Legionnaires' disease, which is similar to pneumonia. Transmission to people results mainly from inhalation or aspiration of aerosolized contaminated water. Untreated or inadequately treated cooling systems, such as industrial cooling towers and building heating, ventilating, and air conditioning systems, have been correlated with outbreaks of legionellosis, since cooling water systems and their components can amplify and disseminate aerosols containing Legionella.

The State of California regulates recycled water that is used for cooling towers operations according to requirements in Title 22, Section 60303, California Code of Regulations. These

requirements mandate the use of chlorine or other biocides to an extent necessary to minimize the growth of Legionella and other microorganisms.

Legionella can grow symbiotically with other bacteria and can infect protozoan hosts. This provides Legionella with protection from adverse environmental conditions, including making it more resistant to water treatment with chlorine, biocides, and other disinfectants. Staff notes that most water treatment programs are designed to minimize scale, corrosion, and biofouling, and not necessarily to control Legionella.

Effective mitigation measures should include a cleaning and maintenance program to minimize the accumulation of bacteria, algae, and protozoa that may contribute to nutritional needs of Legionella. The American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE 1998) emphasizes the need for such programs in its specifications for Legionellosis prevention. Also, the Cooling Tower Institute has issued Guidelines for the Best Practices for Control of Legionella (CTI 2000). Preventive maintenance includes having effective drift eliminators, periodically cleaning the system as appropriate, maintaining mechanical components in working order, and maintaining an effective water treatment program with appropriate biocide concentrations.

Staff's recommended Condition of Certification **Public Health-1** is intended to ensure the effective maintenance and bactericidal action necessary during the operation of SVEP's cooling tower regardless of the source of the cooling water. This condition would specifically require the project owner to prepare and implement a cooling water management plan to ensure that bacterial growth is kept to a minimum in the cooling tower. With the use of an aggressive antibacterial program, coupled with routine monitoring and biofilm removal, the chances of Legionella growth and dispersal would be reduced to insignificance.

CUMULATIVE IMPACTS

When the pollutants of specific concern in this analysis are emitted from multiple sources within a given area, the cumulative or additive impacts of such emissions could, in theory, lead to significant health impacts within the population even when such pollutants are emitted at insignificant levels from the individual sources involved. Analyses of such emissions have shown, however, that the peak impacts of such toxic pollutants are normally localized within relatively short distances from the source. Concentrations beyond the point of maximum impact quickly fall to within background levels. Staff has established from a list of proposed area projects that no new major sources of toxic pollutants are proposed near enough for the impact overlap necessary for significant impacts of a cumulative nature. The potential for such cumulative impacts is addressed in the **Air Quality** section with respect to the criteria pollutants.

As previously noted, the maximum impact location would be the spot where pollutant concentrations for the proposed SVEP would theoretically be highest. Even at this location, staff does not expect any significant change in lifetime risk to any person, given the calculated incremental cancer risk of 1.37 in one million, which staff regards as not potentially contributing significantly to the previously noted average lifetime individual cancer risk of 250,000 in one million. Modeled facility-related residential risks are much lower for more distant locations. Given the previously noted conservatism in the utilized calculation method, the actual risks would likely be much smaller. Therefore,

staff does not consider the incremental risk estimate for SVEP's operation as pointing to a potentially significant contribution to the overall area cancer risk.

The worst-case long-term non-cancer health impact from the project (represented as a chronic hazard index of 0.079) is well below staff's significance level of 1.0 at the location of maximum impact. At this level, staff does not expect any cumulative health impacts to be significant. As with cancer risk, long-term hazard would be lower at all other locations and cumulative impacts at other locations would also be less than significant.

Staff has considered the minority populations (as identified in **Socioeconomics Figure 1**) and low-income populations in its **Public Health** analysis. There are no significant adverse public health impacts and therefore, no environmental justice issues.

COMPLIANCE WITH LORS

The cancer and non-cancer risk estimates for SVEP operation reflect the effectiveness of control measures proposed by the applicant. One of the most effective of these measures is the use of an oxidation catalyst which minimizes the emission of hazardous air pollutants. Since the resulting risks would be at insignificant levels, staff regards the proposed construction and operational plan as complying with the applicable LORS.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

Staff has received informal comments from the California Air Resources Board (CARB) on specific aspects of the analysis of potential construction- and operations-related cancer risks. The comments are of mostly procedural issues and were addressed to ARB's satisfaction in a June 30, 2006 response letter to their Risk Assessments Review Unit.

CONCLUSIONS AND RECOMMENDATIONS

Staff has determined that the toxic air emissions from the construction and operation of the proposed natural gas-burning SVEP would be at insignificant levels not requiring mitigation beyond that already proposed by the applicant. The conditions for ensuring compliance with all applicable air quality standards are specified in the **Air Quality** section for the area's problem criteria pollutants. Implementation of staff's proposed **Public Health** condition of certification to reduce the likelihood of Legionella growth would ensure that the risk of Legionella growth and dispersion is reduced to levels of insignificance. Since the project would not pose a significant health risk in all the surrounding areas, it would not raise the previously noted issue of environmental justice.

PROPOSED CONDITION OF CERTIFICATION

Public Health-1 The project owner shall develop and implement a Cooling Water Management Plan to ensure that the potential for bacterial growth in cooling water is controlled is kept to a minimum. The Plan shall be consistent with

either Staff's "Cooling Water Management Program Guidelines" or with the Cooling Technology Institute's "Best Practices for Control of Legionella" guidelines.

Verification: At least 30 days prior to the commencement of cooling tower operations, the Cooling Water Management Plan shall be provided to the CPM for review and approval.

REFERENCES

American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) 1998. Legionellosis: Position Paper. June 25.

American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) IAQ Applications, spring 2000 Volume 1, No.2.)

ARB (California Air Resources Board) 1996. California Toxic Emissions Factors (CATEF) Database for Natural Gas-Fired Combustion Turbine Cogeneration, 1996

California Air Resource Board (CARB). 2002. California Air Quality Data, http://www.arb.ca.gov/aqd/aqd.htm.

California Air Pollution Control Officers Association (CAPCOA) 1993. CAPCOA Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines. Prepared by the Toxics Committee. October 1992.

CAPCOA (California Air Pollution Control Officers Association) 1993. Air Toxics "Hot Spots" Program, Revised 1992 Risk Assessment Guidelines. Prepared by the Toxics Committee, October 1993.

CH2MHill 2006j. June 30, 2006 Letter to Ms. Stephanie Kato Addressing ARB's Comments on the Health Risk Assessments for Edison Mission Energy Sun Valley Project and the Walnut Creek Energy Park Applications for Certification.

Cooling Tower Institute (CTI). 2000. Guidelines: Best Practices for Control of Legionella.

Scientific Review Panel on Toxic Air Contaminants (SRP) 1998. Findings of the Scientific Review Panel on the Report on Diesel Exhaust as adopted at the Panel's April 22, 1998 Meeting.

South Coast Air Quality Management District (SCAQMD) 2000. An Air Toxics Control Plan for the Next Ten Years. March 2000. South Coast Air Quality Management District publication, 2002.

Title 22, California Code of Regulations, March 20, 2001.

VSE (Valle del Sol Energy, LLC, 2005a). Application for Certification of the Sun Valley Energy Project. Submitted to the California Energy Commission on November 22, 2005.

ATTACHMENT A - CRITERIA POLLUTANTS

OZONE (O_3)

Ozone is not directly emitted from specific sources but is formed when reactive organic compounds (VOCs) interact with nitrogen oxides in the presence of sunlight. Heat speeds up the reaction, typically leading to higher concentrations in the relatively hot summer months. Ozone is a colorless, reactive gas with oxidative properties that allow for tissue damage in the exposed individual. The effects of such damage could be experienced as respiratory irritation that could interfere with normal respiratory function. Ozone can also damage plants and other materials susceptible to oxidative damage.

The U.S. EPA revised its federal ozone standard on July 18, 1997 (62 Fed. Reg. 38856), based on health studies that had became available since the standard was last revised in 1979. These new studies showed that adverse health effects could occur at ambient concentrations much lower than reflected in the previous standard, which was based on acute health effects experienced during heavy exercise. In proposing the new standard, the EPA identified specific health effects known to have been caused by short-term exposures (of one to three hours) and prolonged exposure (of six to eight hours) (61 Fed. Reg. 65719). However, a 1999 federal court ruling blocked implementation of the ozone 8-hour standard, which is yet to be implemented.

Acute health effects from short-term exposures include a transient reduction in pulmonary function, and transient respiratory symptoms including cough, throat irritation, chest pain, nausea, and shortness of breath with associated effects on exercise performance. Other health effects of short-term or prolonged O_3 exposures include increased airway responsiveness (which predisposes the individual to bronchoconstriction induced by external stimuli such as pollen and dust), susceptibility to respiratory infection (through impairment of lung defense mechanisms), increased hospital admissions and emergency room visits, and transient pulmonary inflammation.

Generally, groups considered especially sensitive to the effects of air pollution include persons with existing respiratory diseases, children, pregnant women, and the elderly. However, controlled exposure data on people in clinical settings have indicated that the population at greatest risk of acute effects from ozone exposures as children and adults engaged in physical exercise. Children are most at risk because they are active outside, playing and exercising, during summer when ozone levels are highest. Adults who are outdoors and engaging in heavy exertion in the summer months are also among the individuals most at risk. This happens because such exertion increases the amount of O_3 entering the airways and can cause O_3 to penetrate to peripheral regions of the lung where lung tissue is more likely to be damaged. These individuals, as well as those with respiratory illnesses, such as asthma, can experience a reduction in lung function and increased respiratory symptoms, such as chest pain and cough, when exposed to relatively low ozone levels during periods of moderate exertion.

CARBON MONOXIDE (CO)

Carbon monoxide is a colorless, odorless gas, which is a product of inefficient combustion. It does not persist in the atmosphere, being quickly converted to carbon dioxide. However, it can reach high levels in localized areas, or "hot spots".

CO reduces the oxygen carrying capacity of the blood, thereby disrupting the delivery of oxygen to the body's organs and tissues. Persons sensitive to the effects of carbon monoxide include those whose oxygen supply or delivery is already compromised. Thus, groups potentially at risk to carbon monoxide exposure include persons with coronary artery disease, congestive heart failure, obstructive lung disease, vascular disease, and anemia, the elderly, newborn infants, and fetuses (CARB 1989, p. 9). In particular, people with coronary artery disease were found to be especially at risk from carbon monoxide exposure (CARB 1989, p. 9). Tests conducted on patients with confirmed coronary artery disease indicated that exposure to low levels of carbon monoxide during exercise can produce significant cardiac effects. These effects include chest pain (angina) and electrocardiographic changes indicative of effects on the heart muscle (CARB 1989, p. 6). Such changes can limit the ability of patients with coronary artery disease to exert themselves even moderately. Therefore, the statewide carbon monoxide one-hour and eight-hour standards were adopted in part to prevent aggravation of chest pain. Additionally, however, the standards are intended to prevent decreased exercise tolerance in persons with peripheral vascular disease and lung disease, impaired central nervous system functions, and effects on the fetus (Cal. Code Regs. Tit. 17, sec. 70200).

PARTICULATE MATTER (PM)

Particulate matter is a generic term for particles of various substances, which occur as either liquid droplets or small solids of a wide range of sizes. Particles with the most potential to adversely affect human health are those less than 10 micrometers (millionths of a meter) in diameter (known as PM10), which may be inhaled and deposited within the deep portions of the lung (PM10). PM may originate from anthropogenic or natural sources such as stationary or mobile combustion sources or windblown dust. Particles may be emitted directly to the atmosphere or result from the physical and chemical transformation of gaseous emissions such as sulfur oxides, nitrogen oxides, and volatile organic compounds. PM10 may be made up of elements such as carbon, lead, and nickel; compounds such as nitrates, organics, and sulfates; and complex mixtures such as diesel exhaust and soil fragments. The size, chemical composition, and concentration of ambient PM10 can vary considerably from area to area and from season to season within the same area.

PM10 can be grouped into two general sizes of particles, fine and coarse, which differ in formation mechanisms, chemical composition, sources, and potential health effects. Fine-mode particles are those with a diameter of 2.5 micrometers or less (PM2.5), while the coarse-mode fraction of PM consists of particles ranging from 10 micrometers down to 2.5 micrometers in diameter.

Coarse-mode PM10 is formed by crushing, grinding, and abrasion of surfaces, and in the course of reducing large pieces of materials to smaller pieces. Coarse particles consist mainly of soil dust containing oxides of silicon, aluminum, calcium, and iron; as

well as fly ash, particles from tires, pollen, spores, and plant and insect fragments. Coarse particles normally have shorter lifetimes (minutes to hours) and only travel over short distances (of less than tens of kilometers). They tend to be unevenly distributed across urban areas and have more localized effects than the finer particles.

PM2.5 is derived both from combustion by-products, which have volatilized and condensed to form primary PM2.5, and from precursor gases reacting in the atmosphere to form secondary PM2.5. Components include nitrates, organic compounds, sulfates, ammonium compounds, and trace elements (including metals) as well as elemental carbon such as soot. Major sources of PM2.5 are fossil fuel combustion by electric utilities, industry and motor vehicles, vegetation burning, and the smelting or other processing of metals. Dry deposition of fine mode particles is slow allowing such particles to often exist for long periods of time (of from days to weeks) in the atmosphere and travel hundreds to thousands of kilometers. They tend to be uniformly distributed over urban areas and larger regions and are removed from the atmosphere primarily by forming cloud droplets and falling out within raindrops.

The health effects of PM10 from any given source usually depend on the toxicity of its constituent pollutants. The size of the inhaled material usually determines where it is deposited in the respiratory system. Coarse particles are deposited most readily in the nose and throat area while the finer particles are more likely to be deposited within the bronchial tubes and air sacs, with the greatest percentage deposited in the air sacs. Until recently, PM10 particles had been considered to be the major fraction of airborne particulates responsible for various adverse health effects. The PM10 fraction is known to be capable of penetrating the thoracic and alveolar regions of the human and animal lungs. The PM2.5 fraction, however, was found to pose a significantly higher risk for health. This is due to their size and associated deposition and retention characteristics in the respiratory tract, enabling it to penetrate and deposit within the deeper alveolar regions of the lung. The following aspects of PM2.5 deposition all contribute to the more serious health effects attributed to smaller particles:

- The deposition of PM2.5 favors the periphery of the lungs, which is especially vulnerable to injury for anatomical reasons.
- Clearance of the PM2.5 from within the deeper reaches of the lungs is a much slower process than from the upper regions. Consequently, the residence time is longer, implying longer exposure, and hence greater risk.
- The human anatomy further allows the penetration of the superficial tissues by PM2.5 and entry into the bodily circulation without much effort in the periphery of the lungs.

Many epidemiological studies have shown exposure to particulate matter capable of inducing a variety of health effects, including premature death, aggravation of respiratory and cardiovascular disease, changes in lung function and increases in existing respiratory symptoms, effects on lung tissue structure, and impacts on the body's respiratory defense mechanisms. The underlying biological mechanisms are still poorly understood. Based on their review of a number of these epidemiological studies (as published after 1987 when the federal standards were revised), together with suggestion of PM2.5 concentrations as a more reliable surrogate for the health impacts

of the finer fraction of PM than PM10, the U.S. EPA concluded that the then-current standards were not sufficiently stringent to protect against significant effects in exposed humans. Therefore, federal PM standards were revised on July 18, 1997 (62 Fed. Reg. 38652) to add new annual and 24-hour PM2.5 standards to the existing annual and 24-hour PM10 standards. Taken together, these new standards were meant to provide additional protection against a wide range of PM-related health effects, including premature death, increased hospital admissions and emergency room visits, primarily among sensitive individuals such as the elderly, children and individuals with cardiopulmonary diseases such as asthma. Other impacts include decreased lung function (particularly in children and asthmatics), and alterations in lung tissue and structure.

California has also had 24-hour and annual standards for PM10 (CARB 1982, pp. 81, 84). These studies were aimed at establishing the PM10 levels capable of inducing asthma, premature death and bronchitis-related symptoms. They were set to protect against such impacts in the general population as well as sensitive individuals such as patients with respiratory disease, declines in pulmonary function, especially as related to children (Tit. 17, Cal. Code Regs. §70200). These standards were set to be more stringent than the federal standard, which the ARB regarded as inadequate for the protection desired (CARB 1991, p. 26).

On June 20, 2002, the ARB approved the adoption of a lower annual state standard for PM10, as well as a new annual standard for PM2.5 (CARB 2002). The new standards took effect on July 5, 2003. The 24-hour PM10 standard was not changed. The standards were established to prevent excess death, illnesses such as respiratory symptoms, bronchitis, asthma exacerbation, and cardiac disease, and restrictions in activity from short- and long-term exposures (Title 17, Cal. Code Regs. §70200).

NITROGEN DIOXIDE (NO_2)

Nitrogen dioxide is formed either directly or indirectly when oxygen and nitrogen in the air combine together during the combustion. It is a relatively insoluble gas, which can penetrate deep into the lungs, its principal site of toxicity. Its toxicity is thought to be due to its capacity to initiate free radical-mediated reactions while oxidizing cellular proteins and other biomolecules (CARB 1992, Appendix A, p. 4).

Sub lethal exposures in animals usually produce inflammations and varying degrees of tissue injury characteristic of oxidant damage (Evans in CARB 1992, Appendix A, and p 5). The changes produced by low-level acute or sub chronic exposures appear to be reversible when the animal study subject is allowed to recover in clean air.
Health effects of particular concern in relation to low-level nitrogen dioxide exposure include: (1) effects of acute exposure on some asthmatics and possibly on some persons with chronic bronchitis, (2) effects on respiratory tract defenses against infection, (3) effects on the immune system, (4) initiation or facilitation of the development of chronic lung disease, and (5) interaction with other pollutants (CARB 1992, Appendix A, p. 5).

Several groups, which may be especially susceptible to nitrogen dioxide-related health effects have been identified from human studies (CARB 1992, Appendix A, and p. 3).

These include asthmatics, persons with chronic bronchitis, infants and young children, cystic fibrosis and cancer patients, people with immune deficiencies, and the elderly.

Studies involving brief, controlled exposures on sensitive individuals have shown an increase in bronchial reactivity or airway responsiveness of some asthmatics, as well as decreased lung function in some patients with chronic obstructive lung disease (CARB 1992, Appendix A, p. 2). In general, bronchial hyper reactivity (an increased tendency of the airways to constrict) is markedly greater in asthmatics than in non-asthmatics upon exposure to initiating respiratory irritants (CARB 1992a, p. 107). At exposure concentrations of specific relevance to the current one-hour ambient standard, there appears to be little, if any, effect on respiratory symptoms of asthmatics (CARB 1992a, p. 108).

SULFUR DIOXIDE (SO_2)

Sulfur dioxide is formed when any sulfur-containing fuel is burned. SO_2 is highly soluble and consequently absorbed in the moist passages of the upper respiratory system. Exposure to sulfur dioxide can lead to changes in lung cell structure and function that adversely affect a major lung defense mechanism known as muco-ciliary transport. This mechanism functions by trapping particles in mucus in the lung and sweeping them out via the cilia (fine hair-like structures) also in the lung. Slowed mucociliary transport is frequently associated with chronic bronchitis.

Exposure to sulfur dioxide can produce both short- and long-term health effects. Therefore, California has established sulfur dioxide standards to reflect both short- and long-term exposure concerns. Based on controlled exposure studies of human volunteers, investigators have found that asthmatics comprise the group most susceptible to adverse health effects from exposure to sulfur dioxide (CARB 1994, p. V-1).

The primary short-term effect is bronchoconstriction, a narrowing of the airways, which results in labored breathing, wheezing, and coughing. The short-term (one-hour) standard is based on bronchoconstriction and associated symptoms (such as wheezing and shortness of breath) in asthmatics and is designed to protect against adverse effects from five to ten minute exposures. In the opinion of the California Office of Environmental Health Hazard Assessment, the short-term ambient standard is likely to afford adequate protection to asthmatics engaged in short periods of vigorous activity (CARB 1994, Appendix A, p. 16).

Longer-term exposure is associated with increased incidence of respiratory symptoms (such as coughing and wheezing) or respiratory disease, decreases in pulmonary function, and an increased risk of premature mortality (CARB 1991a, p. 12). The long-term (24-hour) standard is based upon increased incidence of respiratory disease and premature mortality. The standard includes a margin of safety based on epidemiological studies, which have shown adverse respiratory effects at levels slightly above the standard. Some of the studies indicate a sulfur dioxide threshold for effects, suggesting that no significant effects are expected from exposures to concentrations at the state standard (Ibid.).

ATTACHMENT A - REFERENCES

CARB. 1982. California Air Resources Board. California Ambient Air Quality Standard for Particulate Matter (PM10). December 1982.

CARB. 1989. California Air Resources Board. Adequacy of the Statewide Carbon Monoxide Ambient Air Quality Standard: The Impact of Recent Health Effects Studies. Staff Report. December 1989.

CARB. 1991. California Air Resources Board. Prospects for Attaining the State Ambient Air Quality Standards for Suspended Particulate Matter (PM10), Visibility Reducing Particles, Sulfates, Lead, and Hydrogen Sulfide. April 11, 1991.

CARB. 1991a. California Air Resources Board. Amendments to Regulations for the 24-Hour Ambient Air Quality Standard for Sulfur Dioxide. Staff Report, August 1991.

CARB. 1992. California Air Resources Board. Review of the One-Hour Ambient Air Quality Standard for Nitrogen Dioxide. Staff Report. December 1991.

CARB. 1992a. California Air Resources Board. Review of the One-Hour Ambient Air Quality Standard for Nitrogen Dioxide. Technical Support Document. December 1992.

CARB. 1994. California Air Resources Board. Review of the One-Hour Ambient Air Quality Standard for Sulfur Dioxide. Staff Report. December 27, 1994.

CARB. 2002. California Air Resources Board. Resolution 02-24. June 20, 2002.

FDA. 1985. United States Food and Drug Administration. Federal Register. Vol. 50, No. 243. December 18, 1985.

Kleinman et al. 1989. Effects on Human Health of Pollutants in the South Coast Air Basin. Final Report to the South Coast Air Quality Management District. June 1989.

SOCIOECONOMICS

Joseph Diamond Ph. D.

SUMMARY OF CONCLUSIONS

The Sun Valley Energy Project would require a construction period of 12 months to complete. The project owner would largely use local and regional labor. This would not create any significant adverse direct or cumulative socioeconomic impacts on the area's schools, housing, law enforcement, emergency services, hospitals, or utilities. There are no socioeconomic impacts for the operations phase of the project since the project labor force is estimated to be local and small. Public benefits from the construction of the project include capital cost expenditures, construction payroll, property and sales taxes, and the value of locally purchased materials and supplies.

INTRODUCTION

The California Energy Commission staff socioeconomics impact analysis evaluated the project's induced changes on community services and/or infrastructure, and related community issues such as Environmental Justice (EJ). Staff discusses the estimated impacts of the construction and operation of the Sun Valley Energy Project (SVEP) on local communities, community resources, and public services.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

SOCIOECONOMICS Table 1

California Government Code, Sections 65996-65997	Provisions for school district levies against development projects. As amended by SB 50 (Stats. 1998, ch. 407, sec. 23), these sections state that except for those fees established under Education Code 17620, public agencies at the state level may not impose fees, charges, or other financial requirements to offset the cost for school facilities.
Riverside County Ordinance No. 659.6	Provides for development impact fees on new residential, commercial and industrial development to be used for needed community facilities, open space, wildlife and their habitats.

SETTING

The SVEP is located in unincorporated southern Riverside County near the community of Romoland which is 22 miles south of the City of Riverside. For a full description of the socioeconomic setting, please refer to Section 8.10 of the SVEP Application For Certification (AFC). The study area (affected area) defined by the SVEP applicant in the socioeconomics section of the AFC and by staff is Riverside County.

There are many communities within the Riverside-San Bernardino (Counties) Metropolitan Statistical Area (MSA), Orange, Los Angeles, and San Diego Counties that are within a two-hour one-way commute distance of the power plant site. Staff agrees with the applicant's conclusion that non-local construction workers would be drawn largely from these areas. Therefore, staff utilized this labor market area for its evaluation of construction worker availability and community services and infrastructure impacts from the SVEP construction.

Riverside County was used as the study area by staff in identifying fiscal and non-fiscal (private sector) benefits and other potential socioeconomic impacts from the SVEP.

DEMOGRAPHIC SCREENING

The purpose of an environmental justice screening analysis is to determine whether a below poverty level/or minority population exists within the potentially affected area of the proposed site. Staff conducts screening analyses in accordance with the "Final Guidance for Incorporating Environmental Justice Concerns in [the Environmental Protection Agencies'] EPA's [National Environmental Policy Act] NEPA Compliance Analysis," Guidance Document (EPA 1998). Minority populations, as defined by this Guidance Document, are identified where either:

- the minority population of the local area is greater than 50 percent of the affected area's general population; or
- the minority population percentage of the area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis; or
- one or more census blocks in the local area have a minority population greater than 50 percent.

In 1997, the President's Council on Environmental Quality issued Environmental Justice Guidance that defines minority as individuals who are members of the following population groups: American Indian or Alaskan Native, Asian or Pacific Islander; Black not of Hispanic origin; or Hispanic. Low-income populations are identified with the annual statistical poverty thresholds from the Bureau of the Census's Current Population Reports, Series P-60 on Income and Poverty (OMB 1978).

Staff has reviewed Census 2000 information that shows the minority population by census block is 40.17 percent, and 43.28 percent which is less than staff's threshold of 50 percent within a 6-mile and 1-mile radius of the proposed SVEP (**See SOCIOECONOMICS Figure 1**). However, there are census blocks with greater than 50 percent minority population within the 6-mile radius. Therefore, the following other sections will consider environmental justice in their impact analysis: **Air Quality, Public Health, Traffic and Transportation, Hazardous Material Handling, Noise, Transmission Line Safety and Nuisance, Waste Management, Soils and Water Resources, Visual,** and **Land Use.**

Census 2000 by census block group information shows that the below poverty population is 14.25 percent within the 6-mile radius and 9.27 percent within the 1-mile radius. Poverty status excludes institutionalized people, people in military quarters, people in college dormitories, and unrelated individuals under 15 years old.

ASSESSMENT OF IMPACTS

Staff reviewed the SVEP socioeconomic section in the AFC and other socioeconomic data. Staff used the socioeconomic data provided and referenced from governmental agencies, trade associations and its own independent analysis to form the following socioeconomic analysis and conclusions.

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

In this analysis staff used fixed percentage criteria for housing and environmental justice in evaluating potential impacts on various socioeconomic elements. For housing, staff considers a vacancy rate of 5 percent or less of permanent available housing as an indicator of a tight housing market with higher prices and possible overcrowding. For environmental justice, staff uses a threshold of greater than 50 percent for minority/below poverty population as a subset of the total population in the local area. Criteria for subject areas such as fire protection, water supply and wastewater disposal are analyzed in other sections of this staff assessment includes a discussion of CEQA and its thresholds of significance. Educational impacts are subjectively determined but are moot, as described later. Impacts on medical services, law enforcement, community cohesion, and cumulative impacts are based on subjective judgments or input from local and state agencies. Typically, substantial employment of people who come from regions outside the study area has the potential to result in significant socioeconomic impacts.

DIRECT/INDIRECT IMPACTS AND MITIGATION

Population and Employment

The applicant states that sufficient labor supply for construction should be available from Riverside County and that the Riverside-San Bernardino Metropolitan Statistical Area (MSA) should be able to provide an adequate labor supply, but additional construction labor force could come from Los Angeles, Orange, and San Diego Counties (VSE 2005b).

The following **SOCIOECONOMICS Table 2** shows that total labor, by skill, in Riverside County is considerable when compared to the SVEP for the construction phase. It shows there is ample labor supply for the SVEP. In addition, during operation of the SVEP there are only nine permanent workers who are expected to commute and come from Riverside County (VSE 2005b). This is a very small number and there is ample construction labor supply in Riverside County for the SVEP operation phase. Indeed, there were 55,751 construction workers in Riverside County in 2000 (FERC Project No. 11858 2004).

SOCIOECONOMICS Table 2
Available Labor by Skill in Riverside-San Bernardino Counties MSA By Craft/Skill Versus Project Labor Needs

Craft	Total Number of Workers in Riverside- San Bernardino County 2002*	Maximum Number of Workers Needed for the Project**
Specialized Insulation Workers	700	32
Ironworkers	560	54
Carpenters	15,170	29
Electricians	5,170	73
Construction Laborers	12,720	54
All Other Construction Trades and Related Workers/Millwrights (SVEP only)	1,110	72
Operating Engineers (SVEP only) and Other Construction Equipment Operators	4,330	21
Painters (SVEP only) Construction and Maintenance	2,880	14
Pipe fitters (for SVEP only), Plumbers, and Steamfitters	4,320	72
Bricklayers/Cement Masons	3,950	11
Sheet metal workers	2,980	16
Surveyors	500	7
Teamsters (SVEP only) Truck Drivers, Heavy Tractor Trailer	15,290	18

Source: California Employment Development Department 2005.

* Data from the State of California, Employment Development Department (EDD), Labor Market Information, Occupational Employment Projections 2002-2012. Riverside-San Bernardino Metropolitan Statistical Area, Riverside and San Bernardino Counties. 2002 data represents the best available current information.

** The maximum number of workers by each craft would be needed at different points in time during project construction. Refer to Table 8.10-11.

The Impact Analysis For Planning (IMPLAN) model (an input-output model), used in the SVEP AFC to estimate employment and income impacts from the project on the affected area, is acceptable to staff. The University of California at Berkeley uses the IMPLAN model for regional economic assessment and it has been used to assess other generating projects. Employment multipliers refer to the total additional employment stimulated by new economic activity. IMPLAN is a disaggregated type of model that

divides the (regional) economy into sectors and provides a multiplier for each sector (Lewis et al. 1979).

The SVEP construction period is 12 months with an estimated start-up time of spring 2007 and an online date of spring 2008. The average number of construction workers will range from 21 in the first month of construction to approximately 408 workers in the 8 month of construction. The maximum number of non-local workers (not from Riverside County) needed for power plant construction is estimated to be 88. However, most of the non-local employment, about 40 percent, will commute rather than relocate (VSE 2005b).

The total employment estimated by the SVEP using an IMPLAN model with an employment multiplier based on a Social Accounting Matrix (SAM) or Type SAM multiplier for construction ranged from approximately 469 and 533 jobs (which includes 249 and 313 secondary jobs) based on an average of 220 project-related construction jobs. A Type SAM multiplier equals the sum of the multipliers for direct and secondary (indirect and induced) effects. Direct effects capture the impact of direct expenditures. Indirect effects capture the impact of purchases among industries while induced effects capture the impact of household expenditures induced by changes in labor income.

With a construction income multiplier based on a Type SAM model, the SVEP construction income of $23.16 million and 26.16 million would result in secondary income impacts of approximately $7,402,200 and $9,352,550, and total impacts of approximately $30,562,200 and $35,512,550.

For operations, an employment multiplier based on a Type SAM model applied to 9 permanent jobs yields approximately 44 jobs as secondary impacts for a total impact of approximately 53 jobs. The operations income multiplier based on a Type SAM model applied to the $7,630,000 annual operations income yields secondary impacts of approximately $1,539,110 with a total annual impact of approximately $9,169,110 (VSE 2005b).

Staff considers these projected beneficial economic impacts to be reasonable and finds the economic analysis acceptable and consistent with the economic literature (Moss et al.1994 and Mulkey et al. 2000).

Housing

According to federal standards, permanent housing is considered to be in short supply if the vacancy rate is less than 5 percent (Cleary 1989). Staff does not expect any housing to be displaced from this project. Sufficient vacant housing exists to accommodate any workers that elect to temporarily relocate to the study area. As of 2005, there were approximately 690,075 housing units in Riverside County including single family, multi-family, and mobile homes. The vacancy rates for this housing were approximately 13.3 percent or 91,780 units in 2005 (VSE 2005b). Hence, permanent housing is above the federal housing standard of a 5 percent vacancy rate.

Temporary housing includes hotel/motels, campgrounds and rooming housing. Temporary housing has 242 hotel/motels with 22,317 total rooms in Riverside County. As of July 2005, the vacancy rate was about 36.4 percent or 8,123 rooms. Also, there

are about 4 recreational vehicle (RV) parks within 10 miles and 10 RV parks within 25 miles of the SVEP (VSE 2005b).

Again, most of the construction workforce is expected to come from Riverside County and the adjacent counties of San Bernardino, Los Angeles, and Orange. Staff finds there is an adequate supply of permanent and temporary housing such as hotels/motels and RV parks available to accommodate the estimated 88 non-local construction workers who most likely will not relocate. However, if the non-local construction workers do commute it will most likely be on a week-to-week basis. Dependents do not usually accompany construction workers to the site when the project is short-term as is the SVEP. Staff does not expect any housing to be displaced (moved) as a result of this project.

Fiscal and Non-Fiscal Effects

Fiscal impacts (having to do with the public treasury) (all dollars are 2005 (CH2MHill 2006a)) of the SVEP include:

- First year property taxes: $2.2 to $2.5 million to Riverside County. The project life is estimated as 30 years.
- Construction sales and use tax: $14 million associated with the initial purchase of the equipment and materials.
- Operation sales tax: $232,500 each year of SVEP.
- Staff estimated development impact fee is $300,266. Riverside County Ordinance No. 659.6 requires impact fees be collected from developers for needed community facilities, open space, wildlife and their habitats. Staff has proposed Condition of Certification **SOCIO-1** to ensure this fee is paid.

Non-fiscal impacts (private sector) include:

- Total capital costs are estimated at $230 million.
- The estimated construction payroll: $28.6 million over 12 months (2005 dollars) with $17.6 million of that for Riverside County workers. The operations payroll is $630,000 annually to the region.
- Approximately $6-$9 million would be spent locally on construction materials and supplies and $3 million each year of the operation for locally purchased materials within Riverside County (VSE 2005b and VSE 2006a).

Public Services

Education

During construction, most of the labor force will commute from Riverside County or neighboring counties such as San Bernardino, Los Angeles, and Orange (VSE 2005b). For 2004-05, the Riverside County ratio of student-to-(full-time) teachers is above the California average (California Department of Education 2005a & b). Of the schools close to the project area, Romoland School District is not considered overcrowded since Boulder Ridge Elementary School was recently constructed to accommodate residential growth (VSE 2005b). However, Perris Union High School District is considered

overcrowded (Reynolds 2005). The addition of project-related children to schools that are at-or over-capacity may increase costs in terms of supplies, equipment and/or teachers but the impact would be small. Even so, this worst-case scenario is unlikely to occur since the non-local construction workers would not likely relocate family members for the relatively short duration of construction.

For operation of the SVEP, nine operation workers are expected to be hired from the local labor force of Riverside County (VSE 2005b). A worst-case scenario, using non-local labor and an average family size of three persons per household, would result in nine school children if the relocation were in the local school system. This would result in an increase of less than 1 percent using 2004-2005 enrollments for Romoland and Perris Union High School Districts (VSE 2005b), and would not constitute a significant adverse socioeconomic impact.

Education Code section 17620 states that public agencies may not impose fees, charges or other financial requirements to offset the cost for "school facilities". School facilities are defined as "any school-related consideration relating to a school district's ability to accommodate enrollment." Local and state agencies are precluded from imposing (additional) fees or other required payments on development projects for the purpose of mitigating possible enrollment impacts to schools.

School impact fees are expected to be assessed for the SVEP and would be about $3,498 to the Romoland School District and $1,007 to the Perris Union High School District (VSE 2006a). These fees would be paid at the time of filing of the in-lieu building permit as required by staff's proposed Conditions of Certification in **SOCIO-2**.

Law Enforcement

Law enforcement in Romoland is provided by the Riverside County Sheriff's Department. The closest Sheriff's station is in the City of Perris with a response time of 5 minutes for emergency calls and a maximum of 15 minutes for non-emergency calls. California Highway Patrol (CHP) is the primary law enforcement agency for state highways and roads (VSE 2005b.) Staff finds that the existing law enforcement resources would be adequate to provide law enforcement services to the SVEP during construction and operation and that the project would not significantly affect police service is the project area.

Public Utilities

Eastern Municipal Water District (EMWD) will supply water for the SVEP. The SVEP would connect to the Southern California Edison (SCE) electrical transmission grid and natural gas would be supplied by the Southern California Gas Company (So Cal Gas) (VSE 2005b).

Water and wastewater discharge is discussed in the **Soil and Water Resource** section, solid waste removal is discussed in the **Waste Management** section, and supplies of electricity and natural gas are discussed in the **Reliability** section.

Medical Services

Emergency medical services (EMS) can be provided by the Riverside County Sheriff, fire units, and local ambulance services. The Riverside County Sheriff's Department can provide EMS to the project site in about six minutes (McElvain 2006). The EMS response time from Sun City Fire Station 7 to the SVEP site is estimated at five minutes (Marsalek 2006).

The nearest hospital is the Menifee Valley Medical Center in Sun City with 84 beds. It is three to four miles from the project site. The Perris Community Hospital with 34 beds is about 6 miles from the project site (VSE 2005b).

Staff finds the EMS resources adequate to meet the needs of the SVEP during construction and operation. Therefore, there are no significant adverse socioeconomic impacts in the provision of EMS.

CUMULATIVE IMPACT

A project may result in a significant adverse cumulative impact where its effects are cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. (Cal. Code Regs., tit. 14, section 15130.)

Cumulative impacts can occur when more than one project has an overlapping construction schedule that creates a demand for workers that cannot be met by local labor, resulting in an influx of non-local workers and their dependents.

The SVEP would average 220 workers per month and 408 during the peak month, for 12 months from approximately Spring 2007 to Spring 2008.

Other projects planned in Riverside County in addition to SVEP are:

- The Lake Elsinore Valley Municipal Water District, Lake Elsinore, Riverside County, is co-sponsor of a 500 MW Lake Elsinore Advanced Pumped Storage Project (LEAPS) with Nevada Hydro. The project is located primarily on Lake Elsinore and San Juan Creek, in the city of Lake Elsinore, Riverside County. Its projected construction time is 4.5 years starting in July 2007 and finishing in 2011 (Lewandowsky 2006a&b). Construction estimates are reflected in **SOCIOECONOMICS Table 3**.
- Two joint highway projects (Federal/State/Riverside County) in western Riverside County (i.e., Hemet to Corona/Lake Elsinore Corridor and Winchester to Temecula Corridor) "Tier I Draft Environmental Impact Statements/Reports" showed no labor force in-migration from outside Riverside to work on the project (LEAP 2004). In addition, these projects require different skills/crafts than construction of a power plant and transmission line.
- The Inland Empire Energy Center (IEEC, which will be winding down construction when the SVEP is planning to begin construction in spring 2007, is

an 800 MW power plant. **SOCIOECONOMICS Table 3** shows overlap of five months with the SVEP.

- Another major project is the Menifee Valley Ranch east of the SVEP and Menifee Road. It is a residential development approved by Riverside County in 2002 for 4,063 residential units on 1,357 acres with other mixed uses. However, its construction labor force would likely not conflict with the construction of IEEC and SVEP since the workforce mix of crafts is different.
- The City of Riverside is building the Riverside Energy Resource Center (RERC). The RERC is 95 percent completed and is expected to be online in May 2006 (CEC 2006c).
- Finally, Blythe II (Combined Cycle), a 520 MW power plant, has been approved by the Energy Commission but is currently on hold.

SOCIOECONOMICS Table 3
Cumulative Impact Analysis of the IEEC, LEAP, and SVEP Workforces 2007-2008

2007	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
IEEC	237	249	176	140	58			
LEAP			413	413	413	413	413	413
SVEP	21	61	175	215	285	326	362	408
Total Workforce	258	310	764	768	756	739	775	821

2008	Jan.	Feb.	March	April
LEAP	413	413	413	413
SVEP	292	229	175	84
Total Workforce	705	642	588	497

Sources: SVEP AFC 2005. IEEC Amendment 1 2005, FERC Project Number 11858 2004, and Lewandowsky 2006b.

There are no cumulative socioeconomic impacts since the affected trades for 2004 for the Riverside-San Bernardino MSA were 81,000 as calculated by the California Employment Development Division (EDD) (Diamond 2005). This is a sufficient workforce for these projects and the workforce should be even larger during the time of the overlap in 2006-2008. If needed, additional labor force would be available from Los Angeles and Orange Counties.

NOTEWORTHY PUBLIC BENEFITS

Important public benefits discussed under the fiscal and non-fiscal effects section are: capital expenditures, construction payroll, annual property taxes and sales taxes, and the value of locally purchased construction and operation equipment and materials.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

No comments were received from agencies or members of the public regarding Socioeconomics for the SVEP.

CONCLUSIONS

Estimated gross public benefits from the SVEP include increases in property and sales taxes, employment, and income for Riverside County. For example, there are estimated to be an average of 220 direct project-related construction jobs for the 12 months of construction. The SVEP project is estimated to have a total capital cost of $230 million. The construction payroll is estimated at $28.6 million (2005 dollars) for 12 months of construction and the operation payroll is estimated at $630,000. Property taxes are estimated at $2.2 to $2.5 million for the first year for a project life of 30 years. The estimated total sales tax during construction is $14 million and during operation $232,500 annually over the life of the project. An estimated $6-9 million would be spent locally for materials and equipment during construction, and an additional $3 million would be spent annually in local materials.

Staff concludes that construction and operation of the SVEP would not cause significant direct or cumulative adverse socioeconomic impacts on the study area's housing, schools, law enforcement, emergency services, hospitals, or utilities. Hence, there would be no socioeconomic environmental justice issues (disproportionate impacts on minorities or poverty populations) related to this project.

If the Energy Commission certifies the proposed SVEP, staff recommends adoption of the following conditions of certification.

Finally, **SOCIOECONOMICS Table 3**, which appears after the **PROPOSED CONDITIONS OF CERTIFICATION**, provides a summary of socioeconomic data and information from this analysis, with emphasis on economic benefits of the SVEP.

PROPOSED CONDITIONS OF CERTIFICATION

SOCIO-1 The project owner shall pay the one-time statutory development impact fee with Riverside County.

Verification: At least 30 days prior to start of construction, the project owner shall provide proof of payment of the statutory development impact fee.

SOCIO-2 The project owner shall pay the one-time statutory school development fee as required at the time of filing for the in-lieu building permit with the Riverside County Building Department.

Verification: At least 30 days prior to start of project construction, the project owner shall provide proof of payment of the statutory development fee.

SOCIOECONOMICS Table 3[1] Data and Information	
Total Project Capital Costs	$230 million
Estimate of Locally Purchased Equipment and Materials	
Construction	$6-9 million in Riverside County
Operation	$3 million locally per year of operation for materials in Riverside County
Estimated Annual Property Taxes	$2.2 to $2.5 million for the first year. Project life is for 30 years.
Estimated School Impact Fees	$3,498 to the Romoland School District and $1,007 to the Perris Union High School
Estimated Development Impact Fee	$300,266 to Riverside County
Direct Employment (payroll, materials, and supplies)	
Construction (average)	220 jobs
Operation	9 permanent employees.
Secondary Employment	
Construction	249-313 jobs
Operation	44 jobs
Direct Income	
Construction	$23,160,000 to $26,160,000
Operation	$7,630,000
Secondary Income	
Construction	$7,402,200 to $9,352,550
Operation	$1,539,110
Payroll	
Construction	$28.6 million for 12 months (2005 dollars) with $17.6 million for Riverside County.
Operation	$630,000 annually to the region.
Estimated Sales and Use Taxes	
Construction	Total sales and use tax is $14 million.
Operation	$232,500 annually
Existing /Projected Unemployment Rates	Existing – 5.1 percent in November 2005 (not seasonally adjusted and preliminary for Riverside County). Projected - Not available.
Percent Minority Population (6 mile radius)	40.17 percent based on the 2000 Census.
Percent Poverty Population (6 mile radius)	14.25 percent based on the 2000 Census.

[1] Construction is for twelve months, and SVEP project life is planned for 30 years. Economic impacts (in 2005 dollars) and unemployment are for Riverside County, the study area. Population data/information is for a six mile radius from the power plant.

REFERENCES

California Employment Development Department (EDD). 2005. Occupational Employment Projections 2002-2012 Riverside-San Bernardino Metropolitan Statistical Area Riverside and San Bernardino Counties (date visited December 20, 2005).

California Energy Commission Statewide Transmission & Power Plant Maps 2005, Census Pl 94-171 Data-Matrix PL2.

(CEC) California Energy Commission. 2006c. Systems Assessment and Facilities Siting Division Status Report. April 3 to April 23.

California Department of Education, Educational Demographics Office 2005. County-Wide Profile Fiscal Year: 2004-05 Riverside County. http://www.ed-data.k12.ca.us

California Department of Education, Educational Office 2005. State of California Education Profile Fiscal Year:2004-05 Profile of State. http://www.ed-data.k12.ca.us

CH2MHill. 2006a. Applicant's Responses to CEC Data Requests 1-80 Sun Valley Energy Project (05-AFC-03). April 17, 2006.

Cleary, Cam. 1989. California Department of Housing and Community Development, Telephone conversation with Gary D. Walker, Commission Staff. November 14.

Diamond, Joseph. 2004. California Energy Commission Riverside Energy Resource Center (RERC) Socioeconomic Testimony. July.

Diamond, Joseph. 2005. Inland Empire Energy Center Power Project (01-AFC-17c) Petition To Change To GE 107H Combined Cycle Systems. June 7.

FERC Project No. 11858. 2004. Exhibit E-Environmental Report Lake Elsinore Advanced Pumped Storage Project Report on Socio-Economic Impacts. February.

FERC. 2006. Draft Environmental Impact Statement (DEIS) evaluates Lake Elsinore Advanced Pumped Storage (LEAPS) Project on Lake Elsinore and San Juan Creek in California (P-11858-002) 3.3.8 Socioeconomic Resources. February 17.

IEEC (Inland Empire Energy Center). 2005. Amendment 1. Submitted to the California Energy Commission on March 11.

Lewandowsky, Peter. 2006a. Telephone Conversation with Joseph Diamond, Commission Staff. April 18.

Lewandowsky, Peter. 2006b. Telephone Conversation with Joseph Diamond, Commission Staff. November 13.

Lewis, Eugene, Russell Youmans, George Goldman, Garnet Premer. 1979. Economic Multipliers: Can a rural community use them? Western Rural Development Center 24.

Marsalek, Clint. 2006. Sun City Fire Station 7. Telephone Conversation with Joseph Diamond, Commission Staff. January 5.

McElvain, James. 2006. Riverside County Sheriff's Department. E-mail of January 4.

Moss, Steven J., Richard J. McCann, and Marvin Feldman. 1994. A Guide for Reviewing Environmental Policy Studies. Spring.

Mulkey, David and Alan W. Hodges. 2000. Using Implan to Assess Economic Impacts. University of Florida IFAS Extension FE 168.

Reynolds, Emmanuelle. 2005. Perris Union School District. Telephone conversation with Joseph Diamond, Commission Staff. December 19.

U. S. Environmental Protection Agency (EPA), Office of Federal Activities. 1998. Final Guidelines for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance.

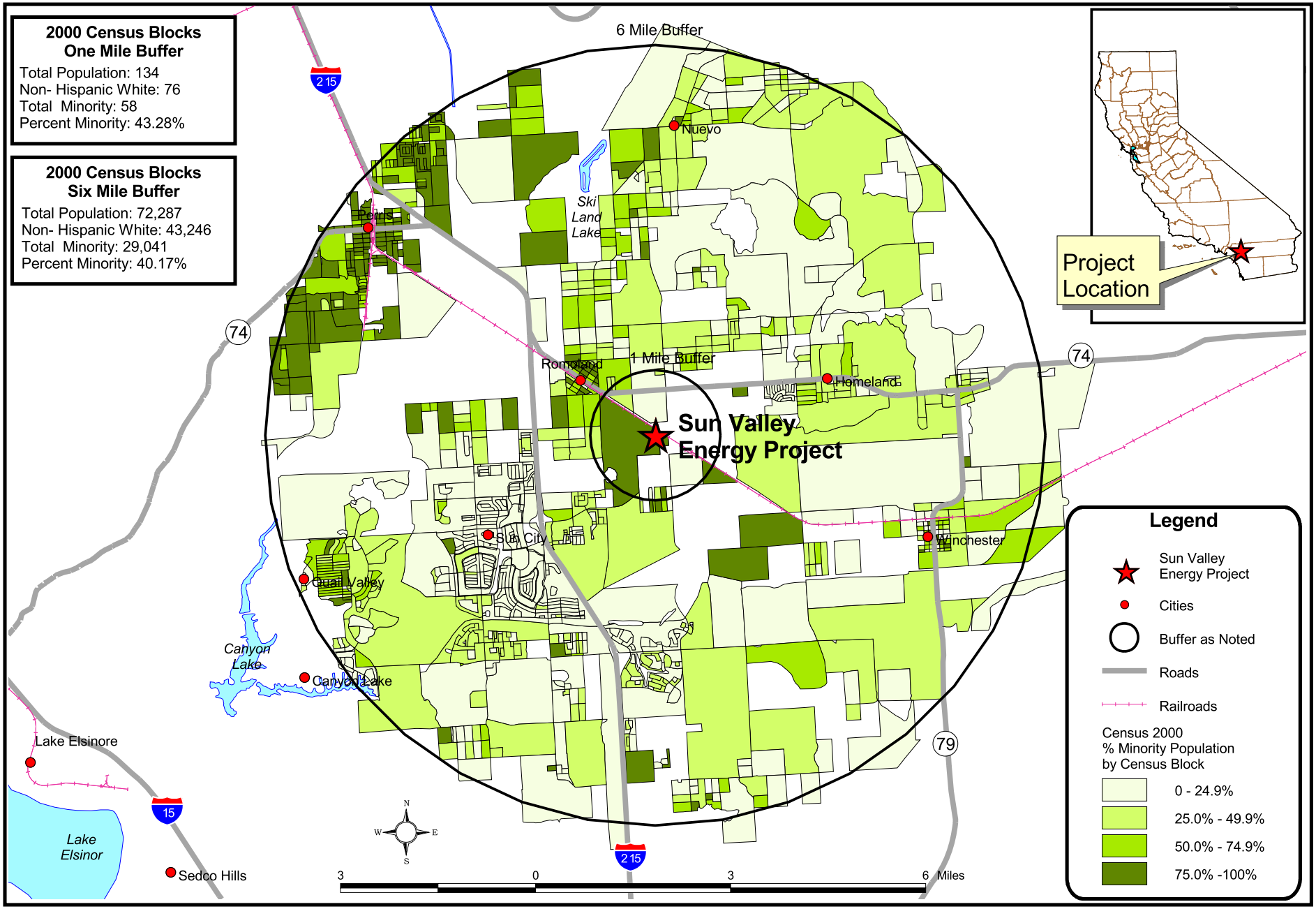
U. S. Office of Management and Budget (OMB). 1978. Current Population Reports, Series P-60 on Income and Poverty.

VSE (Valle del Sol Energy, LLC). 2005b. Application for Certification for Sun Valley Energy Project, Volumes 1 and 2. Submitted to the California Energy Commission. December, 2005.

VSE (Valle del Sol Energy, LLC). 2006a. Data Adequacy for Sun Valley Energy Project, Application for Certification. January 12, 2006.

SOCIOECONOMICS - FIGURE 1

Sun Valley Energy Project - Census 2000 Minority Population by Census Block - One and Six Mile Buffers



CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, DECEMBER 2005

SOURCE: California Energy Commission Statewide Transmission & Power Plant Maps 2005, Census 2000 PL 94-171 Data - Matrix PL2

SOIL AND WATER RESOURCES

Richard Latteri

SUMMARY OF CONCLUSIONS

With the information provided to date for the Sun Valley Energy Project (SVEP), staff has not identified any unmitigable significant impacts to Soil and Water Resources provided the proposed conditions of certification are met. The SVEP would comply with all applicable soil and water resources laws, ordinances, regulations and standards (LORS). Potentially significant impacts would be mitigated through the preparation and implementation of various construction and operating plans and the compliance with local ordinances.

INTRODUCTION

This section analyzes potential impacts to soil and water resources from the construction or operation of the SVEP. The analysis specifically focuses on the potential for the project to cause impacts in the following areas:

- Whether construction or operation will lead to accelerated wind or water erosion and sedimentation.
- Whether the project will exacerbate flood conditions in the vicinity of the project.
- Whether the project's water demand will adversely affect surface or groundwater supplies.
- Whether project construction or operation will lead to degradation of surface or groundwater quality.
- Whether the project will comply with all applicable laws, ordinances, regulations and standards.

Where the potential for impacts is identified, staff has proposed mitigation measures to reduce the significance of the impact and, as appropriate, has recommended conditions of certification.

LAWS, ORDINANCES, REGULATION, AND STANDARDS

SOIL AND WATER Table 1
Laws, Ordinances, Regulations, and Standards

Federal LORS	
Clean Water Act (33 U.S.C. Section 1251 et seq.)	The Clean Water Act (33 USC § 1257 et seq.) requires states to set standards to protect water quality, which includes regulation of stormwater discharges during construction and operation of a facility.
Resource Conservation and Recovery Act	The Resource Conservation Recovery Act (RCRA) of 1976 (40 CFR Part 260 et seq.) seeks to prevent surface and groundwater contamination, sets guidelines for determining hazardous wastes, and identifies proper methods for handling and disposing of those wastes.
State LORS	
Water Code Section 13260	Requires filing with the appropriate Regional Board a report of waste discharge that could affect the water quality of the state, unless the requirement is waived pursuant to Water Code section 13269.
Water Code Section 13551	Requires the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of such water is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare.
Water Code Section 13552.6	Specifically identifies the use of potable domestic water for cooling towers, if suitable recycled water is available, as a waste or unreasonable use of water. The availability of recycled water is determined based on criteria listed in Section 13550 by the State Water Resources Control Board (SWRCB).
Local LORS	
Riverside County Advisory Conditional Use Permit	Riverside County Advisory Conditional Use Permit (CUP03499) sets forth those conditions that are necessary to protect the health, safety and general welfare of the community.
Riverside County Water Quality Management Plan	The Riverside County Flood Control and Water Conservation District has developed standards for a Water Quality Management Plan to address pre- and post-construction impacts associated with urban runoff.
EMWD Ordinance No. 59.5	The Eastern Municipal Water District (EMWD) has adopted detailed permit requirements for industrial discharges.
EMWD Ordinance No. 68.2	Promotes the conservation and reuse of water resources by requiring the use of recycled water whenever it is available; consistent with state law; in the best interests of public health, safety and welfare; and provides a beneficial use.
EMWD Ordinance No. 91	Provides for the regulation of wastewater discharges into the Nonreclaimable Waste Line in accordance with the general pretreatment standards of 40 CFR Part 423.
State Policies and Guidance	
California Constitution, Article X, Section 2	This section requires that the water resources of the State be put to beneficial use to the fullest extent possible and states that the waste, unreasonable use, or unreasonable method of use of water is prohibited.
The Porter-Cologne Water Quality Control Act of 1967, Water Code Sec 13000 et seq.	Requires the State Water Resources Control Board (SWRCB) and the nine RWQCBs to adopt water quality criteria to protect state waters. Those regulations require that the RWQCBs issue Waste Discharge Requirements specifying conditions for protection of water quality as applicable.
SWRCB Res. 77-1	State Water Resources Control Board Resolution 77-1 encourages and promotes recycled water use for non-potable purposes.

SWRCB Res. 75-58	The SWRCB has adopted policies that provide guidelines for water quality protection. The principal policy of the SWRCB that specifically addresses the siting of energy facilities is the Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Powerplant Cooling (adopted by the Board on June 19, 1975 as Resolution 75-58).
SWRCB WQO 92-08	Requires the SWRCB to regulate industrial stormwater discharge from construction projects affecting areas greater than one acre to protect state waters. Under Order 92-08 the Santa Ana Regional Water Quality Control Board (SARWQCB) will issue NPDES permits for construction activities based on an acceptable Storm Water Pollution Prevention Plan (SWPPP) submitted by the applicant.
California Code of Regulations, Title 17	Title 17, Division 1, Chapter 5, addresses the requirements for backflow prevention and cross connections of potable and non-potable water lines.
California Code of Regulations, Title 22	Title 22, Division 4, Chapter 15, requires the California Department of Health Services (DHS) review and approve the wastewater treatment systems to ensure they meet tertiary treatment standards.
California Code of Regulations, Title 23	Title 23, Division 3, Chapter 15, requires the Regional Board issue Waste Discharge Requirements specifying conditions for protection of water quality as applicable.
Recycling Act of 1991 (Water Code 13575 et. seq)	States that retail water suppliers, recycled water producers, and wholesalers should promote the substitution of recycled water for potable and imported water in order to maximize the appropriate cost-effective use of recycled water in CA.
CWC Section 13146	Requires that state offices, departments and boards in carrying out activities which affect water quality, shall comply with state policy for water quality control unless otherwise directed or authorized by statute, in which case they shall indicate to the State Water Resources Control Board in writing their authority for not complying with such policy.
CWC Section 13523	Requires that a Regional Board, shall prescribe water reuse requirements for water, which is to be used or proposed to be used as recycled water after consultation with and upon receipt of recommendations from the State Department of Health Services, and if it determines such action to be necessary to protect the public health, safety, or welfare.
CWC Section 13550	Requires the use of recycled water for industrial purposes subject to recycled water being available and upon a number of criteria including: provisions that the quality and quantity of the recycled water are suitable for the use, the cost is reasonable, the use is not detrimental to public health, and the use will not impact downstream users or biological resources.
CWC Section 13552.8	States that any public agency may require the use of recycled water in cooling towers if recycled water is available, meets the requirements set forth in Section 13550, that there will be no adverse impacts to any existing water right, and that if public exposure to cooling tower mist is possible, appropriate mitigation or control is provided.
The California Safe Drinking Water and Toxic Enforcement Act	This Act (California Health & Safety Code Section 25249.5 et seq.) prohibits actions contaminating drinking water with chemicals known to cause cancer or possessing reproductive toxicity. The Regional Water Quality Control Board administers the requirements of the Act.
Integrated Energy Policy Report (Public Resources Code, Div. 15, Section 25300 et seq)	In the 2003 IEPR, consistent with State Water Resources Control Board Policy 75-58 and the Warren-Alquist Act, the Energy Commission adopted a policy stating they will approve the use of fresh water for cooling purposes by power plants only where alternative water supply sources and alternative cooling technologies are shown to be “environmentally undesirable” or “economically unsound.”

SETTING

The proposed SVEP site is located in the Perris Valley and Hills subsection of the Southern California Mountains and Valley Ecological sub-region, which includes the area between the San Jacinto Fault to the northeast and the Elsinore Fault zone to the southwest. The site is relatively flat and is underlain by Quarternary alluvial sediments and older marine sediments (VSE 2005b, Section 8.4.1).

The SVEP site is composed of two parcels near the unincorporated community of Romoland. The site comprises an area of approximately 23-acres of open farmland, which was in agricultural use until 2006. The site is zoned manufacturing-service and commercial. The elevation of the site is approximately 1460 feet above mean sea level (MSL). No hazardous wastes are generated on-site, no public or private water wells are located on-site, and no sanitary or process wastewater is currently generated on or discharged from the site. Rainfall averages around 11 inches per year and normally infiltrates into the soil due to the region's semi-arid climate (VSE 2005b, Section 8.11.1, Appendix 8.14A, pg 6 and EMWD 2005, Appendix B, Fig. 4-7).

Based on the Phase 1 Environmental Site Assessment prepared by Environmental Strategies Consulting LLC on May 20, 2005, no recognizable environmental conditions exist on the proposed SVEP site; although, residual agricultural chemicals may be present in the soil due to previous farming activities.

PROJECT, SITE, AND VICINITY DESCRIPTION

The proposed site is located off Mathews Road, which diagonally traverses the northern boundary of the SVEP site. Land use in the vicinity of the SVEP is primarily agriculture, intermixed with commercial, industrial, and rural residential uses. Medium-density residential development is concentrated in and near the community of Romoland, located approximately ½-mile northwest of the site and in Sun City located approximately three miles southwest of the site. East of Menifee Road approximately ¼-mile southeast of the SVEP site, the Menifee Valley Ranch residential development is under construction with some homes occupied.

Project Description Figure 3 shows the project site plan and linear facilities consisting of the electric transmission line, natural gas supply line, recycled water supply line, potable water supply line, sanitary sewer line and wastewater disposal line. Three of those pipelines (recycled water, potable water, sanitary sewer) will connect to larger pipelines located 20 feet north of the SVEP site within an easement along the Burlington Northern and Santa Fe (BNSF) railroad right-of-way.

As shown on **Project Description Figure 3**, the SVEP will connect to Southern California Edison's (SCE) electric transmission system at the Valley Substation, which is approximately 600 feet north of the project site. Additionally, the project will require a 750-foot-long natural gas pipeline between the project's northeast boundary and Menifee Road. The gas pipeline will be located in the BNSF railroad easement and will connect to an existing Southern California Gas Company high pressure pipeline. Non-reclaimable wastewater will be discharged through an 8-inch- non-reclaimable

wastewater pipeline (brine return line) that will run west from the project within the right-of-way of McLaughlin Road. The length of the brine return line will be 0.75-mile and will connect with the Inland Empire Energy Center's brine return line at the intersection of McLaughlin and Antelope Roads (VSE 2005b, Section 2.0 and CH2MHill 2006d, Data Request 90).

SOILS

The 22.9-acre site owned by the applicant was in agriculture use until 2006, but will not be farmed in 2007. Exeter Very Fine Sandy Loam (EyB) is the primary soil type covering the SVEP site. Other less dominant, but similar soil types are found on the SVEP site, and numerous other soil types lie along the routes of the natural gas pipeline and brine return line. Rather than listing the other numerous soil types separately, only the primary soil types are listed below in **SOIL AND WATER Table 2**. Additional soil characteristic data can be found in Table 8.11-1 of the AFC. Soils on the SVEP site were developed from sedimentary alluvium consisting of mixed igneous rock eroded from the adjacent highlands (VSE 2005b, Section 8.11.1.2)

SOIL AND WATER Table 2
Soil Types Potentially Affected & Characteristics

Primary Soil Name and percent Site Composition	Slope Class	Erosion Hazard	Permea-bility	Drainage	Shrink-Swell Potential
Exeter Very Fine Sandy Loam (EyB) 26% of SVEP Site	0 – 5%	Slight to Moderate	Moderate to Slow	Well-Drained	Low
Hanford Course Sandy Loam (HcC) 25% of SVEP Site	2 – 8%	Slight to Moderate	Moderately Rapid	Well-Drained	Low
Exeter Sandy Loam (EnA) 24% of SVEP Site	0 – 2%	Slight	Moderate	Well-Drained	Low
Greenfield Sandy Loam (GyA) 15% of SVEP Site	0 – 2%	Slight	Moderate	Well-Drained	Low
Exeter Sandy Loam, Eroded (EnC2) 9% of SVEP Site	2 – 8%	Slight to Moderate	Moderate to Slow	Moderately Well-Drained	Low

VSE 2005b, Section 8.11.2, and
Natural Resources Conservation Service Web Soil Survey URL: websoilsurvey.nrcs.usda.gov

GROUNDWATER

Groundwater underlying the proposed SVEP site is part of the 188,000-acres San Jacinto Groundwater Basin (SJGB). The SJGB lies within alluvium-filled valleys carved into the elevated bedrock of the Perris Block, which creates numerous sub-basins. Collectively, the sub-basins of the SJGB are nearly surrounded by impermeable bedrock mountains and hills. The groundwater resources within the SJGB are managed by EMWD and other cooperating agencies and producers (VSE 2005b, Section 8.15.1.2 and EMWD 2005, pgs 12-14).

In June 1995, EMWD adopted the West San Jacinto Groundwater Basin (WSJGB) Management Plan in accordance with Assembly Bill 3030. Groundwater management zones were delineated based on major impermeable boundaries, constrictions in impermeable bedrock, groundwater divides, and internal flow systems. Within EMWD's service area, there are eight groundwater management zones. The SVEP site is located within the Perris South Management Zone (EMWD 2005, pgs 14&24).

The depth to groundwater in the vicinity of the SVEP ranges from 50 to 100 feet below ground surface (bgs). Historic groundwater levels generally show mixed trends over time in response to periods of drought, above normal rainfall, and changes in the locations and magnitude of pumping. Groundwater levels declined throughout the WSJGB during the 1950's into the early 1970's in response to periods of drought and agricultural pumping but have since recovered to levels that in some areas are among the highest in recorded history (VSE 2005b, Section 8.15.11, CEC 2003, and CDWR 2006).

SOIL AND GROUNDWATER CONTAMINATION

A Phase I Environmental Site Assessment (ESA) was conducted by Environmental Strategies Consulting, LLC, for the proposed SVEP site, and noted the following:

- Based on a review of aerial photographs, the site has always been vacant, undeveloped land used for agriculture prior to 1938.
- No areas of environmental concern were identified in any of the aerial photographs.
- The property is currently vacant, in cultivation and no industrial or commercial activities are being performed on-site.
- Evidence of past or present hazardous substance use, storage or disposal was not observed on the property during the site reconnaissance.
- Based on an environmental database search, the SVEP site and surrounding properties were not identified as locations of known hazardous materials.
- As a precaution, Environmental Strategies Consulting, LLC, adds that residual agricultural chemicals may be present in the soil due to its prolonged use as farmland.

The testing and disposal of potentially contaminated soil from the site is addressed later in this assessment and in the Waste Section of this report (VSE 2005b, Appendix 8.14A - Phase I ESA).

In addition to information provided in the Phase I ESA, soil and groundwater contamination are known to exist on March Air Reserve Base (MARB) as a result of historic base operations. MARB and select off-site areas are designated as an Environmental Protection Agency Superfund Site and are located in the Perris North sub-basin approximately 15 miles north of the proposed SVEP. Groundwater contamination occurs both on-base and off-base to the east and southeast of MARB. The principal organic chemicals of concern are trichloroethylene (TCE) and tetrachloroethylene (PCE) (EMWD 2005, Appendix B, pg 8-5 and CEC 2003a).

SURFACE HYDROLOGY

The proposed SVEP site is located in the Menifee Valley portion of the San Jacinto River watershed. The San Jacinto River watershed encompasses an area of approximately 728 square miles measured from a point just west of Canyon Lake. All rivers and streams within the watershed are ephemeral and only flow when storms are unusually intense and prolonged. Precipitation occurs principally as rainfall during the winter months from November through April, and averages about 11 inches per year (VSE 2005b, Section 8.15.1.1 and EMWD 2005, Appendix B, Figure 4-7).

No perennial surface water sources exist on the project site or within one mile of the SVEP site. The San Jacinto River, an ephemeral drainage, traverses Perris Valley in a northeast to southwest direction and is located about three miles northwest of the SVEP site. Salt Creek, another ephemeral drainage, traverses the valley in generally a westward direction and is located about four miles south of the SVEP site. The Ethanac Wash is the primary drainage feature near the proposed SVEP site and drains along McLaughlin Road to the northwest of the SVEP (CEC 2003a).

The Ethanac Wash defines the 100-year flood boundary as outlined in the Federal Emergency Management Agency (FEMA) floodplain maps. The Ethanac Wash drains by sheet flow into the San Jacinto River and has no clearly defined channel. The proposed brine return line is to be placed within the McLaughlin Road right-of-way, which is located within the 100-year floodplain (VSE 2005b, Figure 8.15-3 and CH2M Hill 2006d, Data Response 88).

PROJECT WATER SUPPLY

EMWD will provide both potable and non-potable water to the SVEP. Construction and industrial process water will be supplied via a proposed 20-foot, 12-inch diameter recycled water supply pipeline connected to an existing 48-inch diameter recycled water pipeline located just north of the site within the BNSF railroad right-of-way. The proposed pipeline will supply tertiary treated recycled water for SVEP construction, hydrostatic testing, cooling, process makeup, and landscaping requirements (VSE 2005b, Appendix 7A and CH2M Hill 2006d, Data Response 85).

SVEP Recycled Water Demand

A “will-serve” letter from EMWD (Appendix 7A of the AFC) commits EMWD to supplying approximately 250 acre-feet per month (AF/mn) of recycled water, with a peak demand of approximately 1,850 gallons per minute (gpm), for cooling, process makeup, and landscape irrigation. On an annual average basis, the SVEP is estimated to require approximately 851 acre-feet (AF) of recycled water for operational and landscape purposes. EMWD anticipates meeting this demand from currently available recycled water resources (VSE 2005b, Section 7.1 and CH2M Hill 2006d, Data Response 85).

Operation of the SVEP will require approximately 1,510 gpm (2.17 million gallons per day (mgd)) and peak at approximately 1,704 gpm (2.45 mgd). These average and maximum daily water demands indicate a range of use corresponding to average ambient temperatures of 62°F and 97°F with the combustion-turbine generators

operating at 100 percent load. The proposed average and maximum daily recycled water demand for the SVEP are summarized below in **SOIL AND WATER Table 3**.

SOIL AND WATER Table 3
Average and Maximum Recycled Water Demand
at 5 Cycles of Concentration

Water Use	Average Instantaneous Use @ 62°F	Maximum Instantaneous Use@ 97°F
Sand Filter Backwash to Brine Return Line	0 gpm	136 gpm
Evaporative Cooler	21 gpm	161gpm
Multi-Media Filter Backwash to Cooling Tower	30 gpm	25 gpm
Reverse Osmosis Reject Water to Cooling Tower	164 gpm	132 gpm
Demineralized Water to CTG Foggers to Stack	333 gpm	269 gpm
Water for Cooling Tower Makeup	946 gpm	955 gpm
Site Landscaping Requirement	16 gpm	26 gpm
Total Plant Water Usage Requirements	**1,510 gpm**	**1,704 gpm**

(VSE 2005a, Figure 7.1-1 & 7.1-2)

SVEP Potable Water Demand

Potable water will be supplied by EMWD through a proposed four-inch diameter pipeline and fire suppression water supplied through a proposed 10-inch diameter pipeline connected to a water main within the BNSF railroad easement north of the SVEP site. The SVEP potable water demand, excluding fire suppression, is estimated to average 3.0 gpm or less than two AFY (VSE 2005b, Section 7.1).

Sanitary and Process Wastewater

The applicant proposes to discharge sanitary wastes from sinks, toilets, showers and other sanitary facilities into EMWD's sanitary sewer system via a proposed 20-foot, four-inch diameter pipeline connected to the existing sewer main located in the utility easement north of the SVEP site (VSE 2005b, Section1.1).

Cooling tower blowdown would be discharged to the brine return line. Other wastewater streams consisting of the reverse osmosis reject stream, evaporative cooler concentrate, multi-media filter backwash and water recovered from the plant drains and the oil/water separator would be sent to the cooling tower basin and eventually discharged to the brine return line. EMWD has committed to accepting peak daily flows of approximately 0.68 mgd of non-reclaimable wastewater and nominal domestic sewer service in their "will-serve" letter contained in Appendix 7A of the AFC. This wastewater would then be conveyed through the Temescal Valley Regional Interceptor and Santa Ana Regional Interceptor (TVRI and SARI) pipeline systems to the Orange County Sanitation District's (OCSD) treatment plants (VSE 2005b, Section 8.15.2.2).

The OCSD has established maximum allowable concentration limits for non-reclaimable wastewater discharged to their system. EMWD has adopted similar limits for its customers to assure compliance with OCSD's requirements. A comparison of EMWD's maximum allowable non-reclaimable wastewater discharge limits with SVEP's expected discharge for various constituents is shown in **SOIL AND WATER Table 4**.

SOIL AND WATER Table 4
Comparison of EMWD/OCSD Discharge Standards and SVEP Non-Reclaimable Wastewater Quality

Constituent	EMWD/OCSD Maximum Allowable Concentration (mg/l)	SVEP Effluent @ Maximum Concentration of 7.4 Cycles (mg/l)
Arsenic	2.0	0.016
Cadmium	1.0	0.0004
Chromium	2.0	0.0348
Copper	3.0	0.037
Cyanide (Total)	5.0	NA
Cyanide (Amenable)	1.0	NA
Lead	2.0	0.00259
Mercury	0.03	0.000348
Nickel	10.0	0.0103
Oil & Grease	100.0	NA
Pesticides	0.01	NA
PCB's	0.01	NA
Silver	5.0	0.0044
Sulfide (total)	5.0	NA
Sulfide (dissolved)	0.5	NA
Total Toxic Organics	0.58	NA
Zinc	10.0	1.035

(CH2M HILL 2006d, Data Response 82) NA = Not Applicable

Stormwater

The existing grade for the SVEP site ranges from 1445 to 1465 feet above MSL and gently drains to the west and southwest. The proposed SVEP will have a finished grade of approximately 1,460 feet above MSL. The existing site is currently in agricultural production with a vegetated cover that allows stormwater to percolate into the soil depending on the duration and intensity of the rainfall event. Construction of the SVEP will increase the impervious surface area of the site and cause increased stormwater runoff. The applicant proposes to collect on-site stormwater runoff in a stormwater infiltration pond designed to contain all SVEP stormwater and allow for percolation into the groundwater (CH2M Hill 2006d, Data Response 90).

Because all facility pipelines associated with the proposed SVEP would be buried, no increased stormwater runoff will result from their installation and operation. Minor clearing of approximately 500 square feet will be required for one off-site transmission tower footing. Drainage from the off-site transmission footing will drain to the Riverside

County Flood Control and Water Conservation District's (District) stormwater collection system (CH2M Hill 2006d, Data Response 90).

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

This project was analyzed to determine if it complies with LORS and meets the standards found in relevant documents such as California Environmental Quality Act (CEQA) Guidelines. The threshold of significance is based on the ability of the project to be built and operated without violating erosion, sedimentation, flood, surface or groundwater quality, water use (supply), or wastewater discharge standards.

The federal, state and local LORS and policies presented in **SOIL AND WATER Table 1** were used to determine the threshold of significance for this assessment. The following LORS and state and local policies are of particular relevance for determining the significance of a potential impact.

- The Clean Water Act requires states to set standards to protect water quality through the regulation of point source and certain non-point source discharges to surface water. Approval under the NPDES permit for stormwater discharges associated with construction and operation activities is administered by the SARWQCB.
- The Resource Conservation Recovery Act of 1976 seeks to prevent surface and groundwater contamination.
- Under Title 22 of the California Code of Regulations, the California Department of Health Services (DHS) reviews and approves wastewater treatment systems to ensure they meet tertiary treatment standards allowing use of recycled water for industrial processes such as steam production and cooling water.
- Riverside County Flood Control and Water Conservation District has developed standards for a Water Quality Management Plan to address urban runoff.
- EMWD Ordinance Nos. 59.5, 68.2 and 91 set municipal standards for wastewater discharges and recycled water use.

For those impacts that exceed the published standards, or do not conform to the established practices, mitigation will be proposed by staff to reduce or eliminate the impact. Such a determination will by necessity rely on science, technology, expert opinion, and best professional judgment to determine what the level of change to the baseline or pre-existing conditions should be. The requirement under the CEQA is that decisions be based on "substantial evidence" that includes "facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts", and not on "argument, speculation, unsubstantiated opinion or narrative." These are important requirements that guide both the analysis of projects and the determination of and mitigation for significant impacts.

DIRECT/INDIRECT IMPACTS AND MITIGATION

The direct and indirect impacts and mitigation discussion presented below is divided into a discussion of impacts related to construction and a discussion of impacts related to operation. For each potential impact discussed, the applicant's proposed mitigation is presented and staff's determination of the adequacy of the proposed mitigation is discussed. If necessary, staff presents additional mitigation measures and refers to specific conditions of certification related to a potential impact and the required mitigation measures.

Construction Impacts and Mitigation

Construction of the SVEP will include soil excavation, grading, and installation of utility connections. Potential impacts to soils related to increased erosion or release of hazardous materials are possible during construction. Potential stormwater impacts could result if increased runoff flow rates and volume discharges from the site increase flooding downstream. Water quality could be impacted by discharge of eroded sediments from the site, discharge of hazardous materials released during construction, or migration of existing hazardous materials present in the subsurface soil and groundwater. Potential construction related impacts to soil, stormwater, and water quality including the applicant's proposed mitigation measures and staff's proposed mitigation measures are discussed below.

Soil Erosion Potential

Construction activities can lead to adverse impacts to soil resources including increased soil erosion, soil compaction, loss of soil productivity, and disturbance of soils crucial for wetlands. Activities that expose and disturb the soil leave soil particles vulnerable to detachment by wind and water. Soil erosion results in the loss of topsoil and increased sediment loading to nearby receiving waters or sewer systems.

The magnitude, extent and duration of those impacts would depend on several factors, including the proximity of the SVEP site to surface water, the soils affected, and the method, duration, and time of year of construction activities. Prolonged periods of precipitation, or high intensity and short duration runoff events coupled with soil disturbance activities can result in on-site erosion. In addition, high winds during grading and excavation activities can result in wind borne erosion leading to increased particulate emissions that adversely impact air quality. The implementation of appropriate erosion control measures will help conserve soil resources, maintain water quality, prevent accelerated soil loss, and protect air quality (VSE 2005b, Section 8.11.2.4).

The project site is a total of 22.9 acres, of which approximately 3 acres would be used as construction laydown. The predominant surface soil condition on the proposed SVEP site is sandy loam or very fine sandy loam from the Exeter Series with a water erosion potential of slight to moderate. However, the surface textures of those soil types have a somewhat higher potential for wind erosion (Natural Resources Conservation Service Web Soil Survey URL:websoilsurvey.nrcs.usda.gov).

The highest potential for erosion will be during construction when the site will be void of vegetation. The geotechnical investigation recommends that a minimum of 36-inches of existing soil be removed in order to locate and facilitate removal of undocumented fill, unsuitable materials and debris. The removal of the top 36-inches of soil has the potential to exacerbate wind erosion and wind borne dust (VSE 2005b, Appendix 10G, Attachment 1, pg 12).

Water and Wind Erosion

Because the project site is nearly level, the applicant believes active soil grading within the site and laydown area would occur over a two-month period. The exposed soil in the laydown area would then be covered with gravel to minimize the erosion potential leaving approximately 10-acres under active construction for an additional 10-month period. The applicant expects to use all excavated soil for grading and leveling of the site to its final design elevation. As outlined in the draft Drainage Erosion and Sediment Control Plan (DESCP), the applicant expects to excavate approximately 40,664 cubic yards (cy) of soil from the site, of which 5,130 cy would be used as construction fill. The remaining 35,533 cy of excavated soil would be spread evenly throughout the site (CH2M Hill 2006d, Data Response 90).

The applicant proposes to employ Best Management Practices (BMPs) including watering the SVEP site at least twice daily and enclose, cover, water, or treat soil stock piles to limit soil loss due to wind erosion. With the implementation of BMPs to limit erosion and trap eroded sediments on-site, the applicant estimates that the soil loss from the SVEP site as a result of water erosion could be as little as 0.0245 tons and PM10 emissions from fugitive dust to be approximately 2.6 tons (VSE 2005b, Sections 8.11.2.4.1 and 8.11.2.4.2).

The draft DESCP submitted by the applicant provides a plan for erosion control during the construction phase of the SVEP. In addition, the applicant proposes to meet the requirements of SARWQCB Order No. 01-34 (San Jacinto Permit) for stormwater and non-stormwater discharges associated with construction activities as well as develop a Water Quality Management Plan (WQMP) in accordance with Order No. R8-2002-0011. With the implementation of appropriate BMPs that are a requirement of the construction Storm Water Pollution Prevention Plan (SWPPP) and the WQMP, the applicant expects to keep soil loss due to water and wind erosion to a negligible amount that would not constitute a significant impact (CH2M Hill 2006d, Data Response 90).

Staff agrees that through the proper application of BMPs the impact to soil resources from water and wind erosion resulting from project construction will be reduced to a level that is less than significant. Staff appreciates the applicant's willingness to comply with the requirements of Order No. 01-34, which prior to February 3, 2005, superseded the provisions of the General Permit for Storm Water Discharges Associated with Construction Activities, Order No. 99-08-DWQ.

On February 3, 2005, the SARWQCB amended Order No. 01-34 through the issuance of Order No. R8-2005-0038. Order No. R8-2005-0038 added a new provision to Order No. 01-34 as item 1 to Section IV, which reads:

1. *Coverage under this order is not required if the discharger implements a Water Quality Management Plan approved by the local agency and if the discharger obtains coverage under the General Permit for Storm Water Discharges Associated with Construction Activities, Order No. 99-08-DWQ, NPDES No. CAS000002.*

Under the findings of Order No. R8-2005-0038, Finding Number 4 states:

The control measures required under the WQMP are at least as stringent as those required by the San Jacinto Permit. As such, coverage under the San Jacinto Permit does not provide any additional water quality protection if the project has an approved WQMP and is covered under the State's General Construction Activities Permit, WQ Order 99-08-DWQ. This order amends Order No. 01-34 to exempt those projects with an approved WQMP from obtaining coverage under the San Jacinto Permit.

Staff has reviewed the requirements of the Riverside County Water Quality Management Plan and agrees with the SARWQCB that the control measures required under the WQMP are at least as stringent as those required by the San Jacinto Permit. Like wise, the requirements of the WQMP are as equally stringent as those of the Drainage, Erosion and Sediment Control Plan and staff considers the need for a separate DESCP as a condition of certification to be redundant. Therefore, a DESCP is not recommended as a condition of certification in this analysis

Through the submittal and implementation of a General Construction SWPPP and a WQMP, potential soil loss and erosion will not cause a significant impact for the proposed SVEP during construction. To ensure that soil resources are protected, staff has proposed conditions of certification **Soil & Water 1 & 2**. Condition of certification **Soil & Water 1** requires the project owner to prepare and implement a construction SWPPP per the provisions of General Order No. 99-08-DWQ. Condition of certification **Soil & Water 2** requires the project owner to prepare and implement a site specific WQMP per the provisions of the September 17, 2004, Riverside County Water Quality Management Plan and the Riverside County Advisory Conditional Use Permit 03499.

Groundwater

The proposed SVEP would not use groundwater during construction, and based on the estimated depth to groundwater of between 50 to 100 feet bgs, groundwater is not expected to be encountered during plant excavation activities. If groundwater is encountered during construction, the applicant proposes dewatering BMPs that will store the water in portable tanks. Any groundwater encountered would be sampled prior to off-site disposal. Staff agrees the likelihood of encountering groundwater during construction is remote, and based on the applicants proposed dewatering BMPS, no impacts to groundwater resources will occur during construction of the SVEP.

Soil and Groundwater Contamination

Based on the findings in the Phase I ESA, it does not appear that there is any known soil or groundwater contamination at the SVEP site. The Phase I ESA cautions that residual agricultural chemicals may be present in the soil due to its prolonged use as

farmland. The applicant proposes to sample the soil after excavation, and soil that is determined to be non-hazardous would be reused on-site or disposed of at a regional disposal facility. If contamination is detected, the waste will be properly disposed of in an authorized waste management facility (CH2M Hill 2006d, Data Response 90).

The soil and groundwater contamination known to exist on MARB is currently undergoing a remediation program. The Base operates an Enhanced Groundwater Extraction and Treatment System along the eastern boundary to capture and treat contaminated groundwater. The SVEP is not expected to affect or be affected by the soil and groundwater contamination at the Air Base.

The depth to groundwater is between 50 to 100 feet bgs as reported in the Geotechnical Report, which is included as Attachment 1 to Appendix 10G of the AFC. Because of this depth, it is unlikely that groundwater will be encountered or affected by the construction of the SVEP. Staff agrees that there does not appear to be any potential adverse impacts associated with soil and groundwater contamination that could affect or could be exacerbated by construction of the proposed SVEP project.

Stormwater Runoff and Surface Water Quality

Potentially significant water quality impacts could occur during construction excavation and grading activities if contaminated or hazardous soil or other materials used during construction were to contact stormwater runoff and drain off-site. Water quality could also be potentially diminished if the stormwater drainage pattern concentrates runoff in areas that are not properly protected with BMPs causing erosion of soils and sediment discharge into the infiltration basin.

The SVEP site is currently covered by vegetation and stormwater runoff either percolates into the soil or flows overland off-site. The applicant recognizes that construction of the SVEP will add impervious areas to the site causing an increase in stormwater runoff and the potential for groundwater dewatering. The applicant has proposed site specific construction BMPs and will submit a construction SWPPP to the SWRCB and a WQMP to the District. The applicant proposes the possible use of Baker Tanks for the collection and treatment of stormwater runoff and the implementation of erosion and sediment control BMPs to prevent the accidental discharge of polluted stormwater from the SVEP construction-site.

Staff agrees with the applicant that the volume of stormwater runoff will increase as a result of construction activities. The 22.9-acre SVEP site is currently unpaved, and construction would alter the existing drainage patterns and ultimately result in increased runoff volumes. No significant change would occur to the 3-acre laydown area since this area will be covered by gravel that may be removed or left in place following construction. Prior to construction, the applicant would be required to develop and submit for review and approval a WQMP outlining a strategy to manage runoff from the construction-site and to prevent the off-site migration of sediment and/or other pollutants.

Through the preparation and implementation of the site specific construction SWPPP and WQMP for compliance with **Soil & Water-1 & 2**, the applicant will assure that stormwater runoff will not affect surface water quality.

Construction Water Supply and Wastewater

In the applicant's Data Adequacy Supplement, they break down water use during construction into three types: (1) dust control, (2) equipment washdown, and (3) hydrostatic testing. The total amount of water used during construction is estimated to be approximately 24 AF over the expected 10 month construction period. In Data Response 85, the applicant states they anticipate using recycled water during construction for those activities. Staff is recommending condition of certification **Soil & Water 4** specifying that prior to initiating project construction, the project owner shall submit evidence of having secured a Recycled Water Agreement with EMWD for the supply of tertiary treated recycled water for all non-potable water uses during construction. The Recycled Water Agreement, which shall be in accordance with EMWD Ordinance No. 68.2, will address the supply of recycled water for construction activities as well as for process, cooling, and landscape irrigation water. Additionally, the applicant also proposes to meet all the requirements of Title 22, Chapter 4 of the California Code of Regulations for the use of recycled water. Staff is recommending condition of certification **Soil & Water 5** specifying that prior to initiating project construction, the project owner will prepare an Engineer's Report in accordance with Title 22, Section 60323 of the California Code of Regulations (VSE 2006a).

By using recycled water for all non-potable water uses during construction, the SVEP will conserve potable water supplies and be protective of surface and groundwater resources. Because of the short duration of construction activities and the relatively small construction water requirements, no impacts to EMWD's ability to supply tertiary treated recycled water to other customers will occur. Through compliance with conditions of certification **Soil & Water 4 & 5**, water resources and public health will be protected and no significant adverse impacts will occur from the use of recycled water during plant construction.

Construction wastewater generated on-site may include stormwater runoff, groundwater from dewatering, equipment washdown water, and hydrostatic wastewater from pressure testing the service utilities. Improper handling or containment of construction wastewater could cause a broader dispersion of contaminants to soil, groundwater or surface water. A potential significant impact to water quality during the course of construction could result from stormwater runoff encountering on-site chemicals or contaminated soil during construction activities.

During construction, the applicant proposes to manage construction wastewater and stormwater runoff through compliance with the required Construction SWPPP and WQMP. Conditions of certification **Soil & Water-1 & 2** will assure there is no significant degradation to water quality resulting from construction wastewater, stormwater, or dewatering activities associated with construction of the SVEP site, laydown area, and linear features. The discharge of any non-hazardous or hazardous wastewater during construction other than stormwater must be in compliance with **Soil & Water-1 & 2**.

Operation Impacts and Mitigation

Operation of the SVEP could lead to potential impacts to soil, stormwater runoff, water quality, water supply, and wastewater treatment. Soils may be potentially impacted through erosion or the release of hazardous materials used in the operation of the SVEP. Stormwater runoff from the SVEP site could result in potential impacts if increased runoff flow rates and volumes discharged from the SVEP site increase downstream flooding. Water quality could be impacted by discharge of eroded sediments from the SVEP site, discharge of hazardous materials released during operation, or migration of existing hazardous materials present in the subsurface soils and groundwater.

Water supply for plant processes, cooling and landscape irrigation could lead to potential impacts to existing recycled water sources. Wastewater discharge to the brine return line could lead to potential impacts if SVEP discharges wastewater with constituent concentrations beyond the OCSD discharge limits. Potential impacts to soil, stormwater, water quality, water supply, and wastewater related to the operation of the SVEP including the applicant's proposed mitigation measures and staff's proposed mitigation measures are discussed below.

Soil

During operation of the SVEP, the entire SVEP site would be covered with impervious material or landscaped so that no soil is exposed. Areas used for parking, storage and laydown during construction will be stabilized and drainage and irrigation systems installed. The applicant has proposed permanent erosion control measures to mitigate all potential soil related impacts from the operation of the SVEP. The applicant proposes to submit and implement a WQMP and an industrial SWPPP. Conditions of certification **Soil & Water-2 & 3** will require the submittal and implementation of the WQMP and industrial SWPPP. No significant impacts to soil resources from plant operation are expected.

Surface and Groundwater

Development of roads, buildings, and other impermeable surfaces as part of the SVEP will increase the rate and volume of runoff generated on the site. This may increase stormwater discharges and the potential for sediment and contaminants to be conveyed off-site. The proposed SVEP will prevent increased stormwater runoff through the development of structural BMPs.

Stormwater

During operation, the SVEP site will be generally flat with paved, graveled or landscaped surfaces. Post-construction runoff from the SVEP site would exceed pre-construction runoff due to the increase of impervious areas. The applicant proposes to capture all on-site runoff in a site specific infiltration basin for percolation to groundwater.

The applicant has provided drainage calculations for the stormwater collection system and the infiltration basin, which will be capable of containing a 25-year storm. The

applicant proposes to submit and implement a WQMP and an industrial SWPPP for the protection of surface and groundwater. To meet the requirements of the District's WQMP, the applicant will have to meet the volume-based sizing criteria for water quality treatment contained in the Riverside County Water Quality Management Plan dated September 17, 2004. Staff believes that with the submittal and implementation of the WQMP and industrial SWPPP per the conditions of certification **Soil & Water-2 & 3**, no significant impacts to surface or groundwater resources will result from plant operation.

Plant Drainage

Miscellaneous plant drainage would consist of cleanup, sample drainage, equipment leakage, and drainage from facility containment areas. Water from those areas would be collected in a system of floor drains, sumps, and pipes within the SVEP and discharged to an oil/water separator. The oil-free water will be recycled to the cooling tower basin. The water is expected to have the same characteristics as the recycled water supplied by EMWD. No significant water or soil related impacts are expected due to plant drainage if the project owner meets condition of certification **Soil & Water-6** which requires the project owner to comply with EMWD's Waste Discharge Permit per Ordinance No. 91.

Spill Prevention

Hazardous materials would be stored within secondary containment to prevent any potential for dispersion of any chemical spills by stormwater. Solid wastes and small amounts of hazardous waste that are generated would be properly accounted for, tracked, handled, and disposed of off-site using licensed transporters and disposal facilities. Conditions of certification **Soil & Water-2 & 3** require the project owner to prepare a WQMP that includes post-construction BMPs and an industrial SWPPP for operational activity, which includes monitoring and testing requirements. Compliance with **Soil & Water-2 & 3** will ensure there are no significant impacts or conveyance of pollutants to the EMWD's sanitary sewer system. No significant impacts to surface or groundwater resources are expected from the operation of the SVEP project (CH2M HILL, Data Response 90).

Flooding

The SVEP site is not located within the 100-year floodplain as defined by FEMA. Although the plant's post-construction stormwater runoff will exceed the pre-construction volume, the applicant proposes to capture all site stormwater runoff in an infiltration basin and will not contribute to off-site flooding. All pipelines will be buried within established right-of-ways and the road beds will be returned to their pre-construction grade.

Groundwater

Operation of the SVEP will have minimal potential to impact groundwater resources in the project area. The project will not use groundwater as a source and the depth to groundwater in the vicinity of the SVEP ranges from 50 to 100 feet bgs making the infiltration of pollutants to the groundwater unlikely. Stormwater runoff from the hazardous materials containment areas would be collected in a system of drains,

sumps, and pipes within the SVEP and discharged to an oil/water separator. The oil-free water will be recycled to the cooling tower basin. SVEP sanitary waste and industrial waste will be discharged through pipelines to licensed facilities and in compliance with EMWD Ordinance Nos. 59.5 and 91. Condition of certification **Soil & Water-6** will require the applicant to comply with EMWD's Ordinance Nos. 59.5 and 91. Compliance with **Soil & Water-6** will ensure there are no significant impacts or conveyance of pollutants to groundwater from plant operation.

Water Supply

The SVEP will use both potable and non-potable water. The primary source of water for the SVEP would be tertiary treated recycled water for plant operation and landscape irrigation. Use of recycled water for all non-potable purposes will cause the least impact to the environment and is consistent with state and local policies for water conservation and maximum reuse of wastewater. The applicant will be required to submit potable and recycled water use data in condition of certification **Soil & Water-7**.

Recycled Water

Operation of the SVEP will require approximately 1,510 gpm to 1,704 gpm depending on plant operation and ambient temperature. The proposed average and maximum daily demand for recycled water supply to the SVEP are summarized in **SOIL AND WATER Table 3**. On an annual average basis, the SVEP is estimated to require approximately 851 AF of recycled water for operation and landscape purposes.

EMWD's Recycled Water Delivery System

EMWD provides wholesale and retail water and wastewater services to a 555-square mile service area in Riverside County. As a full-spectrum provider of water, recycled water, and wastewater treatment and collection services, EMWD has been active in developing local and regional plans for expanded water recycling (EMWD 2005, pg 69).

EMWD's recycled water delivery system includes:

- 135 miles of large diameter distribution pipeline,
- 6,000 AF of surface storage reservoirs/ponds located at 10 separate sites,
- Four regional pumping plants, and
- Five regional water reclamation facilities (RWRFs).
  (4 in operation and 1 currently not in service)

EMWD owns, operates and maintains five RWRFs throughout the district. Each of the RWRFs will be expanded over the next 20 years to meet the demands of the increasing population for tertiary treated recycled water. Inter-connection between the local collection systems serving each treatment plant allows for operational flexibility, improved reliability, and expanded deliveries of recycled water. **SOIL AND WATER Table 5** details the design capacity of EMWD's five RWRFs and their 2000 and 2005 recycled water production (EMWD 2005, pgs 54 & 70 and EMWD 2006).

SOIL AND WATER Table 5
EMWD Regional Water Reclamation Facilities (RWRF)

Treatment Plant	Level of Treatment	Capacity (AFY)	2000 Flow (AFY)	2005 Flow (AFY)
San Jacinto Valley RWRF	Secondary	12,300	7,800	9,400
Moreno Valley RWRF	Tertiary	17,900	12,200	14,200
Perris Valley RWRF	Tertiary	12,300	8,600	12,200
Sun City RWRF	Tertiary	3,400	Not In Service	Not In Service
Temecula Valley RWRF	Tertiary	15,700	8,500	14,200
Total System		**61,600**	**37,100**	**50,000**

(EMWD 2005 Urban Water Management Plan Table 12.2)

With the exception of the San Jacinto Valley RWRF, EMWD's four other treatment plants will produce tertiary treated recycled water, which meet the California Department of Health Services requirements for unrestricted use (Title 22 Code of Regulations, Sections 60306 and 60307). The San Jacinto Valley RWRF is scheduled to be upgraded to produce tertiary treated recycled water by the spring of 2008 (EMWD 2005, pgs 54, 69 & 70).

SVEP Recycled Water Supply

Recycled water supply to the proposed SVEP will originate from the Perris Valley RWRF due to the location of the recycled water pump stations. Presently, EMWD is able to sell 90 – 100 percent of the recycled water produced during the peak demand months (June – September). During the cooler wetter months of the year, surplus recycled water is stored in unlined storage reservoirs/ponds, resulting in extensive groundwater recharge. If storage capacity is full, recycled water is discharged to Temescal Creek and the Santa Ana River. Because of land use changes and a wet winter in 2005, EMWD sold 26,000 AF of recycled water and allocated over 15,000 AF for groundwater recharge. EMWD has the potential to deliver up to 5,000 AFY of tertiary treated recycled water for industrial use. **Soil And Water Table 6** is a forecast of EMWD's recycled water demand based on projections of future water use by type and EMWD's future capacity upgrades (EMWD 2005, pg 72).

SOIL AND WATER Table 6
EMWD Recycled Water Demand by Customer

Use Type	Level of Treatment	2010	2015	2020	2025
Agriculture	Tertiary	13,400	13,200	13,200	13,200
Landscaping	Tertiary	7,700	10,950	13,200	15,750
Wildlife Habitat	Tertiary	4,300	4,300	4,300	4,300
Wetlands/Lakes/Supply Augmentation	Tertiary	2,000	3,250	4,500	5,750
Industrial	Tertiary	5,000	5,000	5,000	5,000
Groundwater Recharge	Tertiary	15,000	15,000	15,000	15,000
Total Capability		**47,400**	**51,700**	**55,200**	**59,000**

(EMWD 2005 Urban Water Management Plan Table 12.6)

EMWD currently has 91 recycled water customers, and 2005 demand was forecasted at 40,000 AF. The majority of recycled water is sold for agricultural use, but sales to municipal and industrial customers are increasing as residential, urban and industrial development replaces irrigated farmland. EMWD believes their projection of recycled water availability is conservative because it does not account for additional recycled water that will become available as a result of less agricultural use when agricultural lands are taken out of production for urban development. EMWD's interconnect recycled water distribution system is expected to maintain the current high level of operation as agricultural customers are replaced with municipal and industrial customers (EMWD 2005, pgs 39, 70 – 72 and EMWD 2006).

The applicant has received a "will-serve" letter from EMWD for the supply of approximately 250 AF/mn, with a peak demand of approximately 1,850 gpm. With EMWD's 2010 forecast of tertiary treated recycled water production of 50,000 AF and the large surpluses allocated to groundwater recharge (15,000 AF), the delivery of 851 AFY for the operation of the SVEP will not cause a supply problem for EMWD.

The applicant proposes no backup water supply for plant operation relying instead on EMWD's well developed and redundant tertiary treated recycled water distribution system (CH2M HILL 2006d, Data Response 84). Because EMWD's recycled water distribution system is interconnected to their five RWRFs and through the use of a pressurized pipeline in the vicinity of the SVEP, EMWD will be able to provide reliable tertiary treated recycled water service to the SVEP. The applicant proposes to obtain a Recycled Water Agreement and to comply with the requirements of EMWD Ordinance No. 68.2. Condition of certification **Soil & Water-4** requires that a Recycled Water Agreement, in accordance with EMWD Ordinance No. 68.2, be obtained prior to the use of recycled water for any element of the SVEP. Compliance with **Soil & Water-4** will assure that no recycled water supply or use impacts will occur as outlined in Article 1.5.0 of the ordinance (EMWD 2006).

EMWD's Recycled and Fresh Water Quality

The standards governing EMWD's potable water and the quality of EMWD's tertiary treated recycled water supplies are shown below in **SOIL AND WATER Table 7**.

SOIL AND WATER Table 7
EMWD's Average Water Quality Characteristics and Standards for Potable and Tertiary Treated Recycled Water

Constituents	Tertiary Treated Recycled Water (mg/l)	Drinking Water Standards (mg/l)
General Parameters		
Alkalinity (as $CaC0_3$)	123	no standard
Hardness (as $CaC0_3$)	75	200
Nitrate as NO_3	31	45
pH	7.3	6.0 – 9.0
Total Dissolved Solids	676	1,500
Total Solids		no standard
Turbidity (NTU)	<2 NTU	1-5 NTU
Chemical Parameters		
Arsenic	0.0022	0.05
Boron	0.48	no standard
Cadmium	0.00006	0.005
Calcium	57.2	no standard
Chloride	195	500
Chromium	0.0047	0.05
Copper	0.005	action level @ 1.3 mg/l
Fluoride	0.48	2
Iron	0.1	0.30
Lead (at tap)	0.00035	action level @ 0.015 mg/l
Magnesium	18.3	no standard
Manganese	0.048.	no standard
Mercury (inorganic)	0.000047	0.002
Nickel	0.0139	no standard
Potassium	16.9	no standard
Silver	0.0006	no standard
Sodium	148	350
Sulfate	143	500
Zinc	0.14	no standard

(VSE 2005b, Table 7.2-1)

The applicant will comply with Title 17 and 22 of the California Code of Regulations (CCR) for backflow prevention, cross connections inspection, and public health and use restrictions. Condition of certification **Soil & Water-5** requires the project owner to prepare an Engineer's Report for the production, distribution, and use of recycled water at SVEP and to obtain review and approval from DHS. The Engineer's Report will verify EMWD's recycled water meets the standards for unrestricted use and that all connections are inspected for cross connections and backflow prevention. Compliance with **Soil & Water-4 & 5** will ensure there are no significant impacts to recycled water supply or use in EMWD's service area and the use of recycled water will be protective of public health and safety.

Additionally, as a requirement of condition of certification **Soil & Water-5**, staff is recommending that tertiary treated recycled water supplied from EMWD's Recycled Water System be the only source of cooling, process and landscape irrigation water for operation of the SVEP. Such use will be in compliance with California Water Code 13550, which requires the use of recycled water for all non-potable plant construction and operation uses. No potable water will be allowed for any use that can be met with tertiary treated recycled water.

Potable Water

EMWD will provide both non-potable and potable water for plant operations as specified in their October 24, 2005, "will-serve" letter. The SVEP's potable water demand, excluding fire suppression, is estimated to average 3.0 gpm or less than two AFY. Due to the small quantity of potable water required for domestic use during plant operations, no significant impacts to EMWD's potable water supply will occur.

Process and Sanitary Wastewater

Wastewater disposal can lead to soil, surface, and groundwater degradation. The SVEP would generate process wastewater from cooling tower and process blowdown, backwash water from ultra filters, and reject water from reverse osmosis, which would be discharged into the brine return line. Other wastewater streams would be recycled for use as cooling tower makeup. The applicant proposes to discharge sanitary wastes into the sanitary sewer.

Process Wastewater

Circulating (or cooling) water system blowdown would consist of recycled water that has been concentrated by approximately five cycles and will contain the residue of the chemicals added to the circulating water. Cooling water treatment will require the addition of a pH control agent, a mineral scale dispersant, corrosion inhibitors, and biocides. These chemicals control scaling and biological growth in cooling towers and corrosion of the circulating water piping and condenser tubes.

EMWD has committed to accepting peak daily flows of approximately 0.68 mgd of non-reclaimable wastewater and nominal domestic sewer service in their "will-serve" letter dated October 24, 2005. The industrial wastewater will be conveyed via a proposed 0.75-mile pipeline from SVEP to EMWD's Reach 4 Pipeline. EMWD's Reach 4 Pipeline has a current capacity of 10 mgd and is currently using approximately one-tenth of its capacity (about 1 mgd) in conjunction with its groundwater desalinization program (CEC 2003).

EMWD's Reach 4 Pipeline conveys wastewater to the TVRI and SARI pipeline systems for eventual treatment by OCSD and discharge into the Pacific Ocean. EMWD has an entitlement to discharge approximately 4.38 mgd into the TVRI and SARI pipelines. Therefore, the addition of SVEP's proposed non-reclaimable wastewater volume will not exceed EMWD's current capacity for conveyance and disposal (VSE 2005b, Section 7.4 and CEC 2003).

The OCSD has established maximum allowable concentration limits for non-reclaimable wastewater discharged to their system, and EMWD has adopted similar limits for its customers to assure compliance with OCSD's requirements. A comparison of EMWD's maximum allowable non-reclaimable wastewater discharge limits with SVEP's expected discharge for various constituents is shown in **Soil and Water Table 4**. SVEP's non-reclaimable wastewater discharge quality will be in compliance with EMWD's discharge requirements.

The applicant proposes to obtain a waste discharge permit (WDP) per the requirements of EMWD's Ordinance No. 91, which provides for the regulation of wastewater discharged into the Nonreclaimable Waste Line (brine return line). The WDP would specify the detailed project specific requirements for the SVEP.

Sanitary Wastewater

Sanitary wastewater generated from sinks, toilets and other sanitary facilities at the SVEP will discharge to EMWD's sanitary sewer system. The predicted maximum daily sanitary wastewater discharge is two gpm. The applicant proposes to discharge SVEP industrial and sanitary wastewater in compliance with EMWD Ordinance Nos. 59.5 and 91. Condition of certification **Soil & Water-6** requires the project owner to provide the Compliance Project Manager (CPM) a copy of the WDP that complies with EMWD's Ordinance Nos. 59.4 and 91. Compliance with **Soil & Water-6** will ensure there are no significant impacts or conveyance of pollutants to groundwater or soils from SVEP's industrial and sanitary wastewater discharges.

CUMULATIVE IMPACTS AND MITIGATION WATER

The Inland Empire Energy Center (IEEC) Power Project (01-AFC-17C) has been licensed to use EMWD supplied tertiary treated recycled water as its primary water source for cooling, process and landscape irrigation. Through 2011, EMWD is allowed to augment its recycled water supply with raw water from the Colorado River Aqueduct (CRA). The maximum annual water consumption for IEEC is estimated to be 4,842 AF, and the project owner's estimate for raw water consumption for years 2008 through 2010 is 232, 92, and 19 AF respectively. In light of IEEC's phased-in use of recycled water, SVEP's relatively small recycled water demand of approximately 851 AFY is not expected to cause a deficiency of recycled water supply to either the IEEC or the SVEP. The Recycled Water Agreement required under condition of certification **Soil & Water-4** will specify the maximum monthly supply of recycled water from EMWD. In their "will-serve" letter, EMWD states that they anticipate the terms and conditions of the provision of service will be clarified in detailed, definitive service agreements.

Because EMWD's forecast for industrial tertiary treated recycled water supply is 5,000 AFY during this timeframe, the SVEP's recycled water demand of 851 AFY will exacerbated IEEC's consumption of raw water. Capacity constraints on EMWD's recycled water distribution system prevents EMWD from delivering additional recycled water to their industrial customers; although, additional supply may be available. Raw water demand from the CRA for IEEC augmentation is not excessive and will have no

appreciable impacts on EMWD's supply of raw water and its ability to deliver potable water to its customers.
Potable water demand for the SVEP is forecast to be 1.2 AFY. This level of consumption is less than the consumptive use of three single family households or approximately 10 people. EMWD has two sources of raw water supply suitable for potable water: imported water from the Metropolitan Water District of Southern California (80 percent) and groundwater (20 percent). EMWD's projected potable water supply for 2005 is approximately 103,500 AF; by 2030, the projection increases to 172,000 AF (EMWD 2005, pgs 9, 12, & 14 and Table 2.1).

Currently, EMWD provides potable water to a service area population of approximately 500,000. By 2030, EMWD expects to provide potable water to a service area population of 889,230. The potable water demand of the SVEP (equivalent to 10 people on an annual basis) is an insignificant amount and will not have a cumulative impact on EMWD's ability to provide potable water to its service area population, (EMWD 2005, Table 1.2)

The SVEP will not cause or contribute to cumulative impacts on water resources. Good engineering practices and BMPs will be used during project construction and operation. Stormwater discharge will adhere to local agency water quality standards and discharge permits. Therefore, no cumulative impacts to surface or groundwater quality are expected. The SVEP's effect on soil erosion, sedimentation, and compaction would be negligible and insignificant. The site is currently under commercial production of wheat, which already results in some amount of water and wind erosion. With the application of soil erosion BMPs, construction of the SVEP is not likely to add significantly to soil loss and erosion. Therefore, the potential for cumulative impacts of the proposed SVEP combined with other projects would be insignificant.

Construction and operation activities related to the SVEP project would not result in cumulative impacts to water and soil resources. It does not appear that related projects or projected population growth would result in cumulative impacts to soil and water resources. Nor does it appear, there are any reasonably foreseeable future projects that, together with the SVEP, would incrementally impact soil and water resources or result in a significant adverse impact.

COMPLIANCE WITH LORS

The project would comply with:

- The Clean Water Act and the authority granted to the State to enforce coverage under the NPDES by the Santa Ana Regional Water Quality Control Board and the Riverside County Flood Control and Water Conservation District to administer the requirements and preparation of the SWPPPs and WQCP;
- The Resource Conservation Recovery Act of 1976 by the proper handling and discharge of wastewater;
- The California Constitution, Article X, Section 2 by using recycled water for all non-potable plant construction and operation uses;

- The Porter-Cologne Water Quality Control Act by the use of recycled water and the implementation of the WQMP and SWPPP;
- California Water Code 13550 by using recycled water for all non-potable plant construction and operation uses;
- The California Safe Drinking Water and Toxic Enforcement Act by establishing secondary containment in chemical storage areas, and including dual plumbing for use of recycled water;
- The Water Recycling Act by using recycled water for all non-potable plant construction and operation uses;
- Title 17 of the California Code of Regulations, by ensuring the Department of Health Services confirms the requirements for backflow prevention and cross connections of potable and non-potable water lines;
- Title 22 of the California Code of Regulations, by ensuring the Department of Health Services reviews the wastewater treatment systems to ensure they meet tertiary treatment standards for protection of public health;
- Title 23 of the California Code of Regulations requiring the Regional Board to issue Waste Discharge Requirements specifying conditions for protection of water quality as applicable;
- The SWRCB Resolution 75-58 by using recycled water for all non-potable plant construction and operation uses;
- The SWRCB Resolution 77-1 by using recycled water for all non-potable plant construction and operation uses;
- The Integrated Energy Policy Report by using recycled water for all non-potable plant construction and operation uses; and
- EMWD Ord. Nos. 59.5, 68.2 and 91 for the use of recycled water for all non-potable plant construction and operation uses and the discharge of sanitary and industrial wastewater.

CONCLUSIONS

Staff has not identified any unmitigated significant impacts to soil and water resources provided all conditions of certification are met. The SVEP would comply with all applicable soil and water resources LORS and potentially significant impacts would be mitigated through the preparation and implementation of various construction and operating plans, the compliance with local ordinances, and compliance with the conditions of certification.

Staff concludes that there would not be any significant adverse impacts to soil and water resources as a result of the proposed Sun Valley Energy Project. Staff also considered potential impacts that could affect the minority population identified in **Socioeconomics Figure 1**. With the applicant's adherence to the conditions of certification there will be no potential significant adverse impacts and therefore, there

are no environmental justice issues. Staff's final determination will be dependent on comments received during the review of this PSA and comments received from Riverside County and other responsible agencies and/or parties.

PROPOSED CONDITIONS OF CERTIFICATION

Soil & Water 1: The project owner shall comply with the requirements of the General National Pollutant Discharge Elimination System (NPDES) Permit for Discharges of Storm Water Associated with Construction Activity. The project owner shall develop and implement a Storm Water Pollution Prevention Plan (SWPPP) for the construction of the entire SVEP site, laydown area, and all linear facilities.

Verification: The project owner shall submit to the CPM a copy of the construction SWPPP prior to site mobilization and retain a copy on-site. The project owner shall submit copies to the CPM of all correspondence between the project owner and the Santa Ana Regional Water Quality Control Board (SARWQCB) about the General NPDES permit for the Discharge of Stormwater Associated with Construction Activities within 10 days of its receipt or submittal. This information shall include copies of the Notice of Intent and Notice of Termination for the project.

Soil & Water 2: Prior to site mobilization, the project owner shall obtain a grading permit that complies with the general conditions of the Building and Safety Department Grading Division (10.BS Grade. 1 – 4 as described on Page 2 of the Riverside County Conditional Use Permit 03499) and obtain CPM approval of the Water Quality Management Plan (WQMP) submitted to the Riverside County Flood Control and Water Conservation District (District) that ensures protection of water quality and soil resources of the SVEP site and all linear facilities for both the construction and operational phases of the project.

Verification: No later than 90 days prior to the start of site mobilization, the project owner shall submit the WQMP to the Riverside County Flood Control and Water Conservation District (District) for review and comment. No later than 90 days prior to the start of site mobilization, the project owner shall submit the WQMP to the CPM for review and approval. The CPM shall consider comments received from the District on the WQMP before issuing approval. The project owner shall submit to the CPM copies of the grading permit and all correspondence between the project owner and the District about the grading permit and WQMP within 10 days of their receipt or submittal. The WQMP shall be consistent with the Stormwater Pollution Prevention Plan (SWPPP) developed in conjunction with the NPDES permits for Construction and Industrial Activities. The project owner shall provide in the monthly compliance report a narrative on the effectiveness of the water pollution control measures contained in the WQMP, the results of monitoring and maintenance activities, and the dates of any dewatering activities.

Soil & Water 3: The project owner shall comply with all of the requirements of the General NPDES Permit for Discharges of Storm Water Associated with Industrial Activity. The project owner shall develop and implement a Storm Water Pollution Prevention Plan (industrial SWPPP) for the operation of the power plant. The project owner shall keep the CPM informed of any modifications to the permit.

Verification: The project owner shall submit to the CPM a copy of the industrial SWPPP prior to commercial operation and retain a copy on-site. The project owner shall submit to the CPM copies of all correspondence between the project owner and the SARWQCB about the General NPDES permit for the Discharge of Storm Water Associated with Industrial Activity within 10 days of its receipt or submittal. This information shall include copies of the Notice of Intent and Notice of Termination for the project.

Soil & Water 4: Prior to site mobilization, the project owner shall provide the CPM with two copies of an executed and final Recycled Water Agreement and any other service agreements with Eastern Municipal Water District (EMWD) for obtaining recycled water for the construction and operation of the SVEP. The agreement(s) shall detail any requirements, conditions, or restrictions on the project owner for the use of recycled water. The project owner shall not connect to EMWD's recycled water system without final approval from EMWD. The project owner shall provide the CPM copies of the final approval from EMWD and all monitoring or other reports required by the agreement(s). The project owner shall notify the CPM of any violations of the agreement(s) terms and conditions, the actions taken or planned to bring the project back into compliance with the, agreement(s) and the date compliance was reestablished. The agreement(s) shall address recycled water use for all non-potable plant construction and operation uses.

Verification: At least 60 days prior to site mobilization, the project owner shall submit to the CPM two copies of the executed Recycled Water Agreement and any other service agreements between the project owner and EMWD for obtaining recycled water for construction and operation of the SVEP in accordance with EMWD Ordinance No. 68.2. The project owner shall submit results of any water quality monitoring required by EMWD to the CPM in the annual compliance report. The project owner shall submit any notice of violation of the agreement's terms and conditions to the CPM within 10 days of receipt, and shall fully explain the corrective actions taken in the next monthly compliance report or annual compliance report, as appropriate.

Soil & Water 5: The SVEP shall use recycled water for all non-potable plant construction and operation uses. The SVEP shall comply with all requirements of Title 22 and Title 17 California Code of Regulations. Prior to delivery of recycled water to the SVEP for any purpose, the owner shall submit a Title 22 Engineer's Report which has been approved by the Department of Health Services (DHS) and the Santa Ana Regional Water Quality Control Board (SARWQCB).

Verification: Prior to beginning any site mobilization activities, the project owner shall submit to the CPM the water supply and distribution system design and Engineer's Report for the Production, Distribution and Use of Recycled Water approved by the DHS and the SARWQCB demonstrating compliance with this condition. The water supply and distribution system design shall be included in the final design drawings submitted to the CBO as required in Condition of Certification **Civil 1**.

The Engineer's Report for the Production, Distribution and Use of Recycled Water shall be prepared in accordance with Title 22 and Title 17 of the CA Code of Regulations, the Health and Safety Code, and the Water Code. The project owner shall comply with any reporting and inspection requirements set forth by the DHS and SARWQCB to fulfill statutory requirements. The project owner shall submit copies to the CPM of all correspondence between themselves and DHS or the SARWQCB within 10 days of receipt or submittal.

Soil & Water 6: Prior to commercial operation, the project owner shall provide the CPM and EMWD with all information and data necessary to satisfy EMWD Ordinance Nos. 59.5 and 91 for the discharge of sanitary and industrial wastewater. During operation, any monitoring reports provided to EMWD shall be provided to the CPM. The CPM shall be notified of any violations of discharge limits or amounts.

Verification: No later than 60 days prior to commercial operation, the project owner shall submit the information and data required to satisfy EMWD Ordinance Nos. 59.5 and 91 to EMWD for review and comment, and to the CPM for review and approval. Written verification from EMWD that a Waste Discharge Permit does not apply and the reasons for exclusion can be used to satisfy this condition.

During operations, the project owner shall submit any water quality monitoring required by EMWD to the CPM in the annual compliance report. The project owner shall submit any notice of violations from EMWD to the CPM within 10 days of receipt and fully explain the corrective actions taken in the annual compliance report.

Soil & Water 7: The project owner shall use tertiary treated recycled water supplied from EMWD's Recycled Water System as its only source of cooling, process and landscape irrigation water. The project owner shall use potable water supplied from EMWD and its annual usage (excluding fire suppression) shall not exceed two acre-feet. Prior to the use of recycled or potable water for commercial operation, the project owner shall install and maintain metering devices as part of the water supply and distribution system to monitor and record in gallons per day the total volume(s) of water supplied to the SVEP from those water sources. Those metering devices shall be operational for the life of the project and must be able to record the volume from each source separately.

Verification: The project owner shall prepare an annual summary, which will include the monthly range and monthly average of daily water usage in gallons per day, and total water used on a monthly and annual basis in acre-feet. The annual summary,

which is to be included in the Annual Compliance Report, shall distinguish sources and uses of water according to recycled water supplied for SVEP cooling, process, and landscape irrigation purposes and potable water for domestic and sanitary purposes. For years subsequent to the initial year of operation, the annual summary will also include the yearly range and yearly average water use by type. For calculating the total water use, the term “year” will correspond to the date established for the annual compliance report submittal.

At least 60 days prior to commercial operation of the SVEP, the project owner shall submit to the CPM evidence that metering devices have been installed and are operational on the potable and recycled water supply and distribution systems. Potable water use may be based on metering or billings from the supplier.

REFERENCES

CEC (California Energy Commission). 2003a. Staff Assessment for Inland Empire Energy Center. May 23, 2003.

CEC (California Energy Commission). 2005a. Staff Assessment Amendment 1 for Inland Empire Energy Center. June 8, 2005.

CEC (California Energy Commission). 2006a. Staff Data Requests 1 through 80. March 15, 2006.

CDWR (California Department of Water Resources). 2006. California's Groundwater Bulletin 118. January 20, 2006.

CH2M Hill 2006a. Applicant's Responses to CEC Staff Data Requests 1-80 for the Sun Valley Energy Project (05-AFC-3). April 17, 2006.

EMWD (Eastern Municipal Water District). 2005. 2005 Urban Water Management Plan. December 21, 2005.

EMWD (Eastern Municipal Water District). 2006. EMWD Recycled Water Distribution System. June 2006.

Riverside County 2006c. Advisory Conditional Use Permit For The Sun Valley Energy Project. July 20, 2006.

VSE (Valle del Sol Energy, LLC). 2005b. Application for Certification for Sun Valley Energy Project, Volumes 1 and 2. Submitted to the California Energy Commission, December 1, 2005.

VSE (Valle del Sol Energy, LLC). 2006a. Data Adequacy Supplement for Sun Valley Energy Project, Application for Certification. January 12, 2006.

TRAFFIC AND TRANSPORTATION

James Adams

SUMMARY OF CONCLUSIONS

Staff concludes that construction-phase traffic associated with the proposed project could cause the level of service (LOS) of southbound traffic on I-215 at the Ethanac Road off ramp to degrade below an acceptable LOS standard should it coincide with regional peak-hour traffic. Effective implementation of the mitigation measures identified by the applicant and in staff's recommended conditions of certification would reduce adverse traffic and transportation impacts to a less than significant level, and ensure that the project complies with applicable laws, ordinances, regulations, and standards (LORS) regarding traffic and transportation. During the operational phase, increased roadway demand resulting from the daily movement of workers and materials is expected to be insignificant.

INTRODUCTION

The Traffic and Transportation section of this Preliminary Staff Assessment (PSA) provides an objective analysis of the Sun Valley Energy Project's (SVEP) impact on the transportation systems in the vicinity of the project. The PSA also addresses the compatibility with applicable traffic and transportation LORS. Staff has analyzed information in the Application for Certification (AFC) submitted by Valle del Sol Energy, LLC (VSE 2005b), and other sources to determine the SVEP's potential to have significant traffic and transportation impacts, and has considered mitigation measures that could reduce or eliminate the significance of those impacts. Conditions of certification are included to implement appropriate mitigation measures and ensure the project's compliance with applicable LORS.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

The table below lists all the LORS that have been identified as applicable to the traffic and transportation impacts of the proposed SVEP project.

TRAFFIC AND TRANSPORTATION Table1
Laws, Ordinances, Regulations, and Standards

Applicable LORS	Description
Federal	
Code of regulations (CFR) Title 14, Chapter 1, Part 77	Includes standards for determining obstructions in navigable airspace. Sets forth requirements for notice to the Federal Aviation Administration of certain proposed construction or alteration. Also, provides for aeronautical studies of obstructions to air navigation to determine their effect on the safe and efficient use of airspace.

Title 49, Subtitle B.	Includes procedures and regulations pertaining to interstate and intrastate transport (includes hazardous materials program procedures), and provides safety measures for motor carriers and motor vehicles who operate on public highways.
State	
California Vehicle Code, Division 2, Chapter. 2.5, Div. 6, Chap. 7, Div. 13, Chap. 5, Div. 14.1, Chap. 1 & 2, Div. 14.8, Div. 15	Includes regulations pertaining to licensing, size, weight and load of vehicles operated on highways, safe operation of vehicles, and the transportation of hazardous materials.
California Streets and Highway Code, Division 1 & 2, Chapter 3 & Chapter 5.5	Includes regulations for the care and protection of State and County highways, and provisions for the issuance of written permits.
Local	
Southern California Association of Governments (SCAG) Regional Transportation Plan.	Establishes regional transportation goals, policies, objectives, and actions for various modes of transportation, including inter-modal and multi-modal transportation activities. SCAG is the overall administering agency, and the Regional Transportation Plan and the related Regional Transportation Improvement Plan are implemented by Riverside County.
SCAG Traffic Congestion Relief Program.	Establishes guidelines for development of a balanced transportation system, relating population and traffic growth, land use decisions, level of service (LOS) performance standards, and air quality improvement. SCAG is the administering agency.
Riverside County General Plan and Circulation Element.	The major goals of the Plan's Circulation Element are to: identify the transportation needs and issues within the County; describe the proposed circulation system's design elements, operating characteristics and limits, and criteria for locating, designing and operating the transportation system; coordinate the development of the circulation system with land use plans and decisions; and develop implementation strategies and funding sources to implement the Element's goals and policies. (County of Riverside, 2003). The County has also adopted an Area Plan for the Sun City/Menifee Valley region, which includes supplemental transportation programs and policies for the region that are coordinated with the Circulation Element.
Riverside County Board of Supervisors Ordinance No. 824	Authorizes participation in the Western Riverside County Transportation Uniform Mitigation Fee Program. Established a schedule whereby all project developments must pay a fee into this program to finance regional transportation improvements.

SETTING

The SVEP site is located in a semi-rural, unincorporated portion of Riverside County approximately 15 miles southeast of the City of Riverside, 6 miles west of the City of Hemet, 4 miles southeast of the City of Perris, and about 1 mile southeast of Romoland (See **TRAFFIC AND TRANSPORTATION Figure 1 –** Transportation figures are at the

end on the analysis). The area is rapidly undergoing a transition from an agricultural setting to a more urbanized environment.

The project site is located near major transportation corridors including Interstate (I) 215 and State Route (SR) 74. Menifee Road is the main vehicle transportation corridor near the site and lies to the east of the project. The Riverside County Transportation Commission (RCTC) railroad line borders the project site to the northeast. Other designated roads surrounding the site (Rouse, Junipero and Matthews roads) are currently unpaved. **TRAFFIC AND TRANSPORTATION Figure 2** illustrates the major roads, potential access routes, and highways in the project's vicinity. The roadways discussion below is based on the traffic and transportation section in the AFC (VSE 2005b, Sections 8.12.1.2.1 & 2).

ROADWAYS

Interstate 215

I-215 is a north-south freeway that lies to the west of the project site. I-215 is a four-lane roadway that joins I-15 to the south in the City of Murietta and extends north through the cities of Perris and Riverside. Near the project site, this freeway receives traffic from the surrounding communities of Sun City, Romoland, Winchester, Homeland, Perris and Hemet. Freeway interchanges near the site include those at SR-74, Ethanac Road and McCall Boulevard.

According to traffic counts conducted by Caltrans in 2004, I-215 carries approximately 69,000 average daily vehicle trips in the vicinity of the project site. Truck traffic accounts for approximately 9 percent of all trips.

State Route 74

This roadway is the primary east-west thoroughfare north of the project site and is currently four lanes that merge with SR-79 east of the project site near the City of Hemet. SR-74 diverges from I-215 and continues west through the City of Perris. East of Ethanac Road, SR-74 is also known as Pinacate Road.

According to traffic counts conducted by Caltrans in 2004, SR-74 carries approximately 25,000 average daily vehicle trips in the vicinity of the project site. Truck traffic accounts for approximately 11 percent of all trips.

Ethanac Road

Ethanac Road is an east-west two-lane collector, northwest of the project site. Ethanac Road crosses the RCTC railroad before it terminates at Matthews Road and SR-74. Access to the project site from I-215 would be via Ethanac, Matthews, and Junipero roads. There are no stop signs or traffic signals on Ethanac Road between I-215 and Matthews Road. According to the Riverside County Traffic Counts Book dated August 23, 2005, Ethanac Road carried approximately 4,095 average daily vehicle trips in the vicinity of the project site.

Menifee Road

Menifee Road is a north-south two to four-lane collector, east of the project area.

Menifee Road provides access to SR-74 for traffic traveling north from the communities of Winchester and Menifee. This roadway provides access to SR-74 for southbound traffic originating near the community of Nuevo. According to traffic counts taken in 2003, provided by Riverside County, Menifee Road carries approximately 6,949 average daily vehicle trips in the vicinity of the project site.

Matthews Road

Matthews Road is a northwest-southwest collector in the project vicinity. The roadway is adjacent to the RCTC rail line and the northern boundary of the project site lies on the opposite side of the rail line from Matthews Road. To construct the SVEP, a temporary railroad crossing from Matthews Road to Junipero Road would allow workers access to the project site. The applicant has been advised by staff to obtain a permit from RCTC to use this temporary crossing. Matthews Road is a two-lane road with approximately 10-foot wide lanes and 1 to 3-foot wide shoulders. It is paved from the intersection with Ethanac Road to 0.1 mile southeast of Palomar Road. A stop sign controls traffic at its intersection with Palomar Road west of the project site. A one-way stop exists at the intersection of Matthews Road and Menifee Road.

According to Riverside County traffic counts taken in September of 2004, Matthews Road carries approximately 3,452 average daily vehicle trips along the paved section between Ethanac Road and Palomar Road.

McCall Boulevard

McCall Boulevard is an east-west two to four-lane collector, south of the project site. McCall Boulevard connects the project site to I-215 via Menifee Road. McCall Boulevard traverses through agricultural and residential areas and also provides access to the Menifee Valley Medical Center. According to Riverside County traffic counts taken in 2003, McCall Boulevard carries approximately 13,264 average daily vehicle trips in the vicinity of the project site.

Rouse Road

Rouse Road is an unpaved east-west local roadway located south of the project site. The road connects Menifee Road with Palomar Road and Encanto Drive, adjacent to I-215. During project operation Rouse Road west from Menifee Road would provide access to Junipero Road and the project site.

The applicant plans to improve, to Riverside County's road standards, Rouse Road between Menifee and Junipero Roads and Junipero north of Rouse Road to the southwest entrance gate within three months of the project's commercial operation (VSE, 2006a, pg. 31).

Junipero Road

Junipero Road is a north-south road right of way along the western boundary of the SVEP site. Currently, Junipero Road is a dirt track between agricultural fields on and adjacent to the project site. Approximately 0.5 miles south of the SVEP site, Junipero Road is newly improved as a connecting street over a short distance north of McCall Boulevard.

During project construction, Junipero Road would provide primary access to the project

site from Matthews Road to the north via a temporary rail crossing. The last 1,500 feet of Matthews Road to the temporary rail crossing would be improved to Riverside County's road standards during the first two months of construction activity (VSE, 2006a). During project operation, Junipero Road would provide primary access to the SVEP site from the south via Rouse Road.

Roadway Operating Conditions

When evaluating a local transportation system, staff uses levels of service (LOS) measurements as the foundation on which to base its analysis. LOS measurements represent the flow of traffic. In general, LOS ranges from "A" with free flowing traffic, to "F" which is heavily congested with flow stopping frequently. The following roadway segments that would be affected by SVEP project traffic operate at acceptable levels of service (LOS D or better) for Riverside County and Caltrans under existing conditions based on daily and peak hour volumes:

I-215 (4-lane urban freeway)

- Northbound at Ethanac Road Off-ramp– LOS D
- Southbound at Ethanac Road Off-ramp– LOS D

SR-74 (4-lane expressway)

- East of Menifee Road – LOS B

Ethanac Road (2-lane collector)

- I-215 to SR 74 (Matthews Road) – LOS B

Matthews Road (unpaved 2-lane collector)

- Ethanac Road to Menifee Road – LOS A

Menifee Road (2 to 4-lane collector)

- SR 74 to McCall Boulevard – LOS A

McCall Boulevard (2-lane collector)

- I-215 to Menifee Road – LOS A

Accident History

Based upon Caltrans' 2004 Accident Summary Reports, I-215 between Ethanac Road and D Street had an accident rate of 0.75 accidents per million vehicle-miles traveled. State Route 74 between I-215 and Menifee Road had an accident rate of 2.57 accidents per million vehicle-miles traveled. In 2004, the average countywide accident rate for freeways was 1.18, and the average accident rate for conventional multilane facilities was 1.09 (Caltrans 2006).

PUBLIC TRANSIT

Public transportation in the area is provided by Riverside Transit Agency. Bus Route 27 is the closest line to the project site. Route 27 runs along SR 74 in the project vicinity and connects the communities of Hemet, Perris, Sun City, Moreno Valley, and Mead Valley. There are no bus stops in the vicinity of the project site. The stop closest to the site is approximately six miles north of the site at SR 74 and 4th Street in the City of

Perris. The next closest stop is 10 miles to the east in the City of Hemet. Generally, one Route 27 bus runs every 1.5 hours in each direction Monday through Friday. No park-and-ride lots for carpooling exist within three miles of the project site.

RAILWAYS

The RCTC owns the rail line that borders the northern edge of the project site and runs southeasterly (or northwesterly) parallel to Matthews Road. The Burlington Northern Santa Fe (BNSF) railroad maintains and uses the rail line. The number of train trips made is approximately 2 to 3 trips per week and trains in the project vicinity travel at approximately 10 miles per hour (VSE, 2005b, pg. 8.12-11). There are new crossing gates with lights where the rail line crosses Menifee Road. No traffic control system or rail line crossing signal currently exists where the Junipero Road right of way intersects the rail line at the northwest corner of the project site.

AIRPORTS

The SVEP site is located approximately four miles southeast of the Perris Valley Airport and Parachuting Center, 6 miles west of the Hemet-Ryan Airport, and 10 miles southeast of the March Air Reserve Base.

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

Significance criteria are based on California Environmental Quality Act (CEQA) Guidelines, the CEQA Environmental Checklist (amended December 1, 1999) and on performance standards or thresholds established by responsible agencies.

An impact may be considered significant if the project results in:

- An increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections);
- A level of service standard that has been established by the county congestion management agency for designated roads or highways is exceeded through impacts of a proposed project, either individually or cumulatively, when combined with current and reasonably foreseeable planned projects;
- A change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- A substantial increase in hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- Inadequate emergency access;
- Inadequate parking capacity;
- A significant hazard to the public or the environment through the transportation of hazardous material.

DIRECT/INDIRECT IMPACTS AND MITIGATION

The following section describes potential traffic and transportation changes, and potential impacts, associated with the construction and operation of the SVEP. The section also provides an assessment of potential transportation-related safety impacts.

PROJECT CONSTRUCTION

Traffic impacts from the SVEP construction were evaluated based on weekday evening peak periods (4:00 to 6:00 pm) for roadways adjacent to the project site. This peak hour analysis was used to provide a worst-case scenario for the impact of 408 daily workers during the peak construction phase.

Based on delays in the review process, construction is expected to begin in early 2008. Construction hours would generally occur between 7:00 am and 7:00 pm, Monday through Friday, although some activities would continue 24 hours per day, 7 days per week.

The delivery and haul-away of construction materials would also occur during the day but not during peak hours. **TRAFFIC AND TRANSPORTATION Table 2** presents a summary of the trip generation for the project construction phase. Construction traffic impacts to local and regional roads would be determined by the routes used by construction workers and delivery trucks when arriving and departing from the project site. It is assumed that most workers and deliveries of building supplies and equipment would come from the greater Riverside area. More specifically, it is expected that the primary route to the site (for 80 percent of the construction workers) would be via I-215, east on Ethanac Road, southeasterly on Matthews Road, and south on Junipero Road. This expectation is based on the assumption that the entire workforce would commute from Riverside County. Staff believes this route is reasonable because it is the shortest distance to and from I-215 and it does not go through developing residential areas. It is expected that the remaining 20 percent would access the site from communities to the east of the project site via SR-74, south on Menifee Road, northwest on Matthews Road, and south on Junipero Road to the site (VSE, 2005b, pg. 8.12-16).

TRAFFIC AND TRANSPORTATION Table 2
Trip Generation Summary--Construction Phase

	Average Daily Round Trips	Peak Daily Round Trips	Morning Peak Hour		Evening Peak Hour	
			In	Out	In	Out
Workers	220	408	408	0	0	408
Delivery Trucks	5	8	0	0	0	0
Heavy Vehicles & Trucks	5	10	0	0	0	0
Total	230	426	408	0	0	408

Source: VSE 2005b, Table 8.12-5, pg. 8.12-16

Level of Service Changes

The combination of commute, truck, and visitor traffic associated with the construction phase of the SVEP is expected to increase the volume of traffic on some of the roadways in the local area, but with mitigation would not cause a significant impact on roadway traffic conditions. A construction-phase traffic analysis conducted by the applicant indicates that:

- The LOS for SR-74 east of Menifee Road would degrade from level B to level C;
- The LOS for Ethanac Road between I-215 and Matthews Road would degrade from level B to level D;
- The LOS for southbound I-215 traffic at the Ethanac off ramp would degrade from level D to level E;
- The LOS for the other roadway segments described in the previous "Roadway Operating Conditions" section would remain the same (LOS D or better).

With project related traffic, the anticipated traffic flow conditions on Ethanac Road would still operate within the acceptable LOS range established by Riverside County for Community Development areas (i.e., LOS D). The southbound I-215 traffic at the Ethanac off-ramp would temporarily exceed (for an approximate five-month period) Caltrans limit of acceptable delay (LOS D), if construction traffic coincides with peak-hour traffic. SR-74 would still operate within an acceptable LOS established by Caltrans.

Staff has proposed Condition of Certification **TRANS-2** to require development and implementation of a construction traffic control plan. This plan relates primarily to the construction phase and is intended to ensure that project-related traffic would not significantly degrade existing traffic conditions. The construction traffic control plan would outline the measures needed to be taken on a month-to-month basis based on the expected construction traffic volumes. The construction contractor would be required to prepare a construction traffic control plan and implementation program that addresses construction workers' arrival and departures times at off-peak traffic periods, parking and laydown areas, timing of heavy equipment and building materials deliveries; an employee trip reduction plan; and signing, lighting, and traffic control device placement. The arrival and departure of workers during off-peak periods would allow the southbound traffic on I-215 at Ethanac Road, and eastbound traffic on Ethanac Road from I-215 to Matthews Road to remain at LOS D, which is an acceptable LOS for Caltrans and Riverside County.

The unpaved section of Matthews Road between Ethanac Road and the temporary rail crossing (approximately 1,500 feet) would be improved with a temporary road surface (i.e. gravel) during the first two months of construction. Staff's proposed Condition of Certification of Certification **TRANS-3** would ensure this improvement occurs.

Construction activities have the potential to damage local roadways. Staff has proposed Condition of Certification **TRANS-5** to require the applicant to repair affected public rights-of-way (e.g., highway, road, bicycle path, pedestrian path) to original or near original condition that have been damaged due to construction activities associated with the project.

Staff has considered the minority populations (as identified in **Socioeconomics Figure 1**) and low income populations in its impact analysis. With mitigation, there are no significant adverse traffic and transportation impacts, and therefore, no environmental justice issues.

Parking

All construction workforce parking and laydown areas would be accommodated within the site and on the Southern California Edison easement north of the project site (VSE, 2005b, pg. 8.12-18). This would prevent construction worker parking from affecting traffic flow on roads. The applicant is expected to enforce a policy that all project-related parking occurs in designated parking areas; therefore, construction period parking is not considered a significant project impact. Parking and laydown areas are addressed in Condition of Certification **TRANS-2**.

Proximity to School

Romoland Elementary School is located one block north of SR-74 in the community of Romoland (see **TRAFFIC AND TRANSPORTATION Figure 2**). Over 50 students who live south of the highway and north of Ethanac Road must cross it every day without being able to use a traffic signal for assistance. Representatives of the Romoland School District have expressed concern about existing traffic and potential increased traffic (trucks in particular) related to the SVEP. There are two signs facing opposite directions on SR-74 near Sherman Road that say “school crossing” (Romoland School District 2007). There is also a crossing guard that assists children but it is still a somewhat dangerous situation since vehicles on this section of the highway are traveling at 65 mph. Staff shares the concern that additional traffic related to the SVEP could aggravate the situation and is proposing Condition of Certification **TRANS-2,** which would require project related traffic to use a route that does not put additional traffic on the section of SR-74 near the school.

Linear Facilities

Natural gas would be supplied via a 12-inch diameter pipeline connection to an existing line in nearby Menifee Road, 750 feet from the northern portion of the SVEP site. The reclaimed water, potable water, and sewer lines would connect to existing lines in a utility easement immediately north of the project site along Matthews Road. A 600-foot long 115 kV transmission line would connect with the existing SCE Valley Substation. A 0.75-mile long 8-inch diameter non-reclaimable waste water pipeline would run west along McLaughlin Road (VSE 2006b, pp. 1-1 & 1-2). There would be some short term traffic impacts when installing the linears, particularly with respect to the waste water and natural gas pipelines. The owner should obtain and comply with all necessary encroachment permits from Riverside County for any construction within public rights-of-way. Staff has proposed Condition of Certification **TRANS-1** to ensure compliance with relevant encroachment permit requirements, and Condition of Certification **TRANS-2** (construction traffic control plan) which would ensure these temporary impacts are less than significant.

Hazardous Materials Transport

The applicant has noted that hazardous materials consisting primarily of batteries and various liquid wastes (e.g. cleaning solutions, solvents, paint and antifreeze) would be generated during project construction. A minimal number of truck trips per month would be required to haul waste for disposal. The projected route would be via Junipero Road, Matthews Road, Ethanac Road, I-215. Staff believes that this is a reasonable route because it is the shortest one available and it does not affect developing residential areas.

PROJECT OPERATION

The operation of the SVEP would require a labor force of approximately nine full-time employees who would have adequate on-site parking spaces. It is expected that the majority of the permanent workforce would reside in the greater Riverside area, and that the permanent access route to work would be south on I-215, east on SR-74, south on Menifee Road, west on Rouse Road and north on Junipero Road to the project site (VSE 2005b, pg. 8.12-16). This travel route would easily accommodate the operations related traffic. No significant long-term traffic impacts are expected as a result of the SVEP's operational workforce and visitor traffic. Within three months after commercial operation, Rouse Road (from Menifee to Junipero) and Junipero Road (from Rouse Road to the project entrance) would be improved (VSE 2006a, pg. 31) according to Riverside County standards.

Truck Traffic

During operation of the SVEP, trucks would periodically deliver replacement parts, lubricants, liquid fuels, aqueous ammonia, sulfuric acid, and other consumables and pick up trash. The anticipated travel routes for materials delivery would be south on I-215 from the greater Riverside area, east on Ethanac Road, southeast on Matthews Road, south on Menifee Road, west on Rouse Road and north on Junipero Road to the project site (VSE, 2005, pg. 8.12-16). The estimated number of monthly truck trips (15) during operation would not cause a change to any roadway LOS level. Therefore, the existing highway and roadway system would not be significantly impacted by the increase in truck traffic associated with the operation of the SVEP.

Aviation Safety

The SVEP site is located approximately four miles southeast of the Perris Valley Airport and Parachuting Center, six miles west of the Hemet-Ryan Airport, and 10 miles southeast of the March Air Reserve Base.

As noted above in **TRAFFIC AND TRANSPORTATION Table 1** and the Setting section of this analysis, the Federal Aviation Administration (FAA) Regulations, Part 77 establishes standards for determining obstructions in navigable airspace and sets forth requirements for notification to the FAA of proposed construction. Notification is also required if the structure or obstruction is more than a specified height and falls within any restricted airspace in the approach to airports. FAA Form 7460-1 is normally required when new or altered structures are within an airport control zone; which is generally within a two to three-mile radius. For airports with runways longer than 3,200 feet, the restricted air space starts at 200 feet in elevation at 20,000 feet from an airport.

The Perris Valley Airport has one runway that is 5,100 feet long. The project structures would be less than 200 feet high, therefore, the applicant is not obligated to submit Form 7460-1 to the FAA. Staff contends that the project would not present a hazard to air traffic.

Transportation Hazards

There are no identified roadway features (e.g., sharp curves), dangerous intersections or incompatible uses in the project's vicinity that would cause a substantial increase in roadway hazards.

As noted earlier, the RCTC rail line borders the northern boundary of the project site and is proposed to be crossed by SVEP construction traffic via a temporary rail crossing. No railroad-crossing currently exists where Junipero Road intersects the railroad. The number of train trips made in the vicinity of the proposed project is approximately two or three per week. Trains through the project vicinity travel at approximately 10 miles per hour (VSE 2005b, pg. 8.12-11). Staff has been advised by RCTC staff that the applicant would file an application for rail line crossing approval. The application would take between 60 and 90 days to process. RCTC would work with BNSF to develop an appropriate crossing (RCTC 2007). Staff proposes Condition of Certification **TRANS-2** to require development of a traffic control plan and **TRANS-4** to ensure RCTC approval of the temporary crossing is obtained prior to the start of construction. The rail crossing should be built pursuant to RCTC specifications.

Emergency Access

The Riverside County Fire Department serves the project area; the closest station is Station No. 7, located at 27860 Bradley Road in Sun City, approximately three miles from the project site. The station is staffed 24 hours per day. The average response time to a call is five minutes throughout the service area.

Emergency medical services are provided by county sheriff and fire units and by local ambulance services. The closest emergency medical facility to the proposed project site is the Menifee Valley Medical Center, located at 28400 McCall Boulevard in Sun City, about 2.5 miles from the proposed project site. Any emergency vehicles would enter through the plant's main entrance on Junipero Road from Matthews Road during construction (or from Rouse Road via Menifee Road during the operational phase). When improved, the roadways surrounding the project site are expected to operate at or above an acceptable LOS. With staffs proposed mitigation (see Condition of Certification **TRANS-2**), there would be no significant decreases in LOS expected from the construction or operation of the SVEP facility. Staff has concluded that the SVEP would not impede or affect emergency access; therefore, no impact is expected.

Ground-Hugging Plumes

Staff has determined that there is a very minor potential for visible ground-hugging plumes from the cooling towers as currently designed. Ground-hugging plumes could occur when the wind velocity is sufficient to blow the cooling tower plumes horizontally and downward towards the ground. Staff's modeling shows that the plumes would remain within the project fence line except for those blowing to the east-southeast. The maximum length of the plumes was predicted to be about 500 meters (1,600 feet). At

this length, ground-hugging plumes would not cross any existing roads, though the east-southeast plume would almost reach Menifee Road. In addition, southeasterly plumes 500 meters long were predicted to form only 12 non-continuous minutes over a 5 year modeling period (Aspen 2006). Therefore, staff believes that there would be no significant adverse traffic and transportation impact from ground-hugging plumes.

Hazardous Materials Transport

During operation, trucks would periodically deliver and haul away various hazardous materials and waste to/from the site. The applicant estimates a maximum of three truck trips per day, with an average of two or less truck trips per day to the site. In addition, the SVEP would require truck delivery of aqueous ammonia twice a week. These deliveries would be made during off-peak hours (VSE pg. 8.12-19). The applicant's proposed transportation route for hazardous materials during operation would be via I-215, Ethanac Road, Matthews Road, Menifee Road, Rouse Road, and Junipero Road to the project site. Staff agrees that this is a suitable route considering its low potential for impact on public and sensitive receptors, though Romoland Elementary School is two blocks north of Ethanac Road and there are residential communities along Ethanac Road and Menifee Road south of Matthews Road. However, this route is the shortest, most direct distance through the local area on surface streets, and any other route would be longer and would go by more schools and residential communities.

The applicant states that the transport of hazardous materials will comply with all applicable requirements of the California Highway Patrol and Caltrans (VSE 2005b, pg. 8.12-20). For a more detailed discussion on the handling and disposal of hazardous substances, see the **HAZARDOUS MATERIALS MANAGEMENT** section of this PSA. All transportation and handling of hazardous substances can be mitigated to insignificance by compliance with federal, state, and local standards and permits established to regulate the transportation of hazardous substances.

CUMULATIVE IMPACTS AND MITIGATION

Given the planned development of surrounding sites and roadways, it is likely the region will continue to experience development and substantial traffic volume growth on regional roadways over time.

The traffic impacts associated with construction and operation of the SVEP should be considered in light of the nature, travel patterns, and timing of other construction projects planned or underway in the vicinity. The major construction projects currently underway or planned include the Inland Empire Energy Center (IEEC) and the Menifee Valley Ranch residential project.

The construction time frame for the SVEP (when the project would generate the most traffic), is planned for the period between the Winter of 2008 and the Winter of 2009. Most all of the SVEP construction traffic would use Ethanac and Matthews Roads from the I-215 off-ramp. Most of the IEEC construction traffic also uses Ethanac Road to access the IEEC site. IEEC peak construction will be finished by December 2007. The facility is expected to be in operation by Summer 2008.

The northern section of Menifee Valley Ranch residential development, which is currently under construction, generates high volumes of construction traffic and, when completed, will generate high volumes of residential traffic. Construction of the northern section will be completed by the spring of 2008 (Ferrara 2007). The SVEP construction traffic and traffic associated with the Menifee development would primarily travel along Menifee Road to Ethanac Road, or McCall Boulevard to access I-215 to the west, or areas along SR-74 to the east.

Because of the timing and travel patterns associated with these other large development projects, the addition of SVEP construction phase traffic could create a significant cumulative impact. Staff proposes that the SVEP work with the County and Caltrans to develop a month-by-month construction traffic control plan that will mitigate the project's construction traffic impacts on the area roadways and intersections. With implementation of staff's proposed construction traffic control plan (see Condition of Certification **TRANS-2**), the cumulative traffic impact would be less than significant.

Staff has considered the minority populations (as identified in **Socioeconomics Figure 1**) and low income populations in its impact analysis. With mitigation, there are no significant adverse traffic and transportation cumulative impacts, and therefore, no environmental justice issues.

COMPLIANCE WITH LORS

The applicant has stated their intention to comply with all federal, state and local LORS. Conditions of certification to ensure compliance are outlined below. Therefore, the project is considered consistent with identified federal, state, and local LORS pertaining to traffic and transportation.

Prior to the issuance of an occupancy permit, the project owner shall pay Riverside County a Transportation Uniform Mitigation fee to help pay for the construction and acquisition of regional transportation improvements. The fee is based on a schedule that is periodically updated. At the time the Ordinance (No. 824) went into effect on February 8, 2003, the fee for industrial projects was $1.45 per square foot (Riverside County 2003a, pg. 4). Staff has proposed Condition of Certification **TRANS-3** which would require proof of payment of the mitigation fee. The project owner should also incorporate the transportation recommendations contained in the Riverside County Advisory Conditional Use Permit (Riverside County 2007).

TRAFFIC AND TRANSPORTATION Table 3
Compliance with LORS

Applicable LORS	Provision	Consistency
Federal		
Part 77, Federal Aviation Administration (FAA) Regulations	Establishes standards for determining obstructions in navigable airspace and sets forth requirements for notification to the FAA of proposed construction.	The project site is not located within an airport control zone.
Title 49, Subtitle B.	Includes procedures and regulations pertaining to interstate and intrastate transport (includes hazardous materials program procedures), and provides safety measures for motor carriers and motor vehicles who operate on public highways.	Enforcement is conducted by state and local law enforcement agencies, and through state agency licensing and ministerial
State		
California Vehicle Code, Division 2, Chapter. 2.5, Div. 6, Chap. 7, Div. 13, Chap. 5, Div. 14.1, Chap. 1 & 2, Div. 14.8, Div. 15	Includes regulations pertaining to licensing, size, weight and load upon vehicles operated on highways, safe operation of vehicles, and the transportation of hazardous materials.	Enforcement is provided by state and local law enforcement agencies, and through ministerial state agency licensing and permitting, and/or local agency permitting.
California Streets and Highway Code, Division 1 & 2, Chapter 3 & Chapter 5.5	Includes regulations for the care and protection of State and County highways, and provisions for the issuance of written permits.	Enforcement is provided by state and local law enforcement, and through ministerial state agency licensing and permitting, and/or local agency permitting. Condition of Certification **TRANS-1** requires encroachment permits for encroachment into public rights-of-way.
Local		
Southern California Association Of Governments Traffic Congestion Relief Program.	Establishes guidelines for development of a balanced transportation system, relating population and traffic growth, land use decisions, level of service (LOS) performance standards, and air quality improvement.	As proposed, the project would comply with LOS performance standards established by SCAG and Riverside County for local roadways. Project construction traffic could temporarily exceed the acceptable LOS standard for southbound I-215 traffic if it coincides with peak-hour traffic. Effective control of construction traffic travel times as proposed by Condition of Certification **TRANS-2** would mitigate this potential impact.
General Plan Circulation Element.	Describes the transportation needs and issues within the County, including the circulation system's design elements, operating characteristics and limits, and criteria for locating, designing and operating the transportation system.	The project would comply with the provisions of the Riverside County General Plan by not reducing the level of service below LOS D.
Riverside County Board of Supervisors Ordinance No. 824	Authorizes participation in the Western Riverside County Transportation Uniform Mitigation Fee Program. Established a schedule whereby all project developments must pay a fee into this program to finance regional transportation improvements.	The project would comply with this ordinance by paying a fee into the Mitigation Fee Program (see Condition of Certification **TRANS-3**).

NOTEWORTHY PUBLIC BENEFITS

As noted earlier, staff proposes that the project owner should incorporate the transportation recommendations contained in the Riverside County Advisory Conditional Use Permit. This includes payment of the Transportation Uniform Mitigation Fee which

would help pay for needed improvements in the regional transportation system, as required in **TRANS-3**.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

Staff has reviewed the Riverside County Advisory Conditional Use Permit dated March 13, 2007, and has incorporated the transportation recommendations into Condition of Certification **TRANS-3**.

CONCLUSIONS

During the construction phase, increased roadway demand resulting from the daily movement of workers and materials is expected to increase traffic volumes and degrade the level of service on SR-74 east of Menifee Road, Ethanac Road between I-215 and Matthews Road, and southbound I-215 traffic at the Ethanac off-ramp. The traffic would remain at an acceptable level of service for SR-74 and Ethanac Road but could temporarily exceed an acceptable level for southbound I-215 vehicles if construction traffic coincides with peak hour traffic. Staff has proposed Condition of Certification **TRANS-2** to mitigate the expected construction traffic impacts.

The addition of SVEP construction traffic and other new local area construction traffic to the roadways and highways could result in a significant cumulative impact. Staff is proposing Condition of Certification **TRANS-2** which would require construction workers' arrival/departure times occur outside of peak traffic periods.

During the operational phase, increased roadway demand resulting from the daily movement of workers and materials is expected to be insignificant.

The conditions of certification proposed below are those that staff has identified as necessary to mitigate project impacts based on the information available to date. Staff will consider comments received on the Preliminary Staff Assessment and may make changes to this analysis, and possibly the proposed conditions of certification, in the Final Staff Assessment. If the Energy Commission certifies the SVEP, staff recommends that it adopt the following conditions of certification.

PROPOSED CONDITIONS OF CERTIFICATION

TRANS-1 The project owner or its contractor shall comply with Riverside County Transportation and Land Management Agency limitations for encroachment into public rights-of-way and shall obtain necessary encroachment permits from Riverside County.

Verification: In the Monthly Compliance Reports, the project owner shall submit copies of any encroachment permits received during that month's reporting period to the Compliance Project Manager (CPM). In addition, the project owner shall retain copies of these permits and supporting documentation in its compliance file for at least six months after the start of commercial operation.

TRANS-2 The project owner shall develop a construction traffic control plan that outlines what measures need to be taken on a month-to-month basis with input from Riverside County Transportation and Land Management Agency, Caltrans and the CPM. The construction traffic control plan must address the following minimum requirements:

- Requiring heavy equipment and building materials deliveries be done during off-peak traffic periods;
- Construction traffic shall not use the section of SR-74 from Sherman Road to Antelope Road to avoid passing near the Romoland Elementary School;
- Construction work hours and arrival/departure times outside of peak traffic periods;
- Ensuring that the parking and laydown areas are confined to the site and the Southern California Edison easement north of the site;
- Directing traffic on local roads (i.e. Menifee, McLaughlin, Ethanac, Matthews, Junipero roads) as needed during project construction with signs and/or flag personnel;
- Signing, lighting, and traffic control device placement if required;
- Haul route shall be I-215, Ethanac, Matthews, and Junipero Roads;
- Provide a construction workforce ridesharing plan.
- Procedures for safe access to the main entrance;
- Ensure access for emergency vehicles to the project site;
- Temporary travel lane closure; and
- Ensure access to adjacent residential and commercial property during the construction of all linear features.

Verification: At least 30 days prior to start of site preparation or earth moving activities, the project owner shall provide the plan to Riverside County Transportation and Land Management Agency and Caltrans for review and comment, and to the CPM for review and approval. The plan shall contain a statement signed by the project owner that the measures contained in the plan will be implemented. Any deviance from the submitted plan shall be reported to the CPM.

TRANS-3 The project owner and contractor shall improve to Riverside County standards the unpaved section of Matthews Road southeast of Palomar Road to the temporary rail crossing at Junipero Road within the first two months of construction. Prior to operation, the project owner shall construct the following off-site access roads: Junipero Road from the project site to Rouse Road and the easterly section of Rouse Road to Menifee Road. Road improvements shall be done according to Riverside County standards.

The project owner shall pay Riverside County the Transportation Uniform Mitigation fee and any assessment/benefit district reapportionment fees. Prior to commencing construction, the project owner shall install street lighting, extend and underground required utilities along the streets, and provide offsite rights of way associated with the project in accordance with County standards as requested in the Riverside County Advisory Conditional Use Permit (Riverside County 2007).

Verification: At least 60 days prior to the start of construction, the project owner shall submit plans to improve Matthews Road to the Riverside County Transportation and Land Management Agency for review and comment, and to the CPM for review and approval. The project owner shall provide to the CPM a letter from the Riverside County Transportation and Land Management Agency stating their satisfaction with the plans.

At least 60 days prior to building final inspection, the project owner shall submit plans for modifications to Matthews and Junipero and Roads, and street lighting and utility installation plans, to Riverside County Transportation and Land Management Agency for review and comment, and to the CPM for review and approval. Prior to the start of operations the project owner shall provide to the CPM a letter from Riverside County stating their satisfaction with the plans. Prior to operation, the project owner shall provide proof of payment of the Transportation Uniform Mitigation fee, and any assessment district fee, to the CPM. Within 30 days after completing the road, street lighting, and utility improvements, the project owner shall submit to the CPM a letter from Riverside County stating their satisfaction with the completed improvements.

TRANS-4 The project owner shall get approval from the Riverside County Transportation Commission (RCTC) for the temporary railroad crossing between Matthews and Junipero Roads. The project owner shall install the temporary rail crossing to the specifications of the RCTC prior to the start of construction.

Verification: At least 90 days prior to start of site preparation or earth moving activities, the project owner shall submit to the CPM for review and comment the application to the Riverside County Transportation Commission for the temporary railway crossing. Prior to the start of construction, the project owner shall provide to the CPM a letter from RCTC granting approval for the railroad crossing.

Within 30 days after completion of project construction, the project owner shall consult with the RCTC and the CPM (as needed) to determine and receive approval for the actions necessary to remove the temporary railway crossing and restore the grade along the railway to its pre-construction condition. The project owner shall submit to the CPM a letter from RCTC stating their satisfaction with the completed removal of the temporary railway crossing and restoration of the grade.

TRANS-5 The project owner shall repair to original or near original condition affected public rights-of-way (e.g., highway, road, bicycle path, pedestrian path) that have been damaged due to construction activities conducted for the project and its associated facilities.

Prior to start of site mobilization, the project owner shall notify the Riverside County Transportation and Land Management Agency about their schedule for project construction. The purpose of this notification is to request the Agency to consider postponement of public right-of-way repair or improvement activities until after project construction has taken place and to coordinate construction-related activities.

Verification: Prior to the start of site mobilization, the project owner shall photograph, or videotape the following public right-of-way segment(s) (includes intersections): Ethanac Road from I-215 to Matthews Road, the paved portion of Matthews Road between Ethanac Road and Menifee Road, and McLaughlin Road. The project owner shall provide the CPM and the Riverside County Transportation and Land Management Agency with a copy of these images.

Within 60 calendar days after completion of construction, the project owner shall meet with the CPM and Riverside County Transportation and Land Management Agency to identify sections of public right-of-way to be repaired, to establish a schedule to complete the repairs and to receive approval for the action(s). Following completion of any public right-of-way repairs, the project owner shall provide to the CPM a letter signed by the Riverside County Transportation and Land Management Agency stating their satisfaction with the repairs.

REFERENCES

Aspen 2006. E-mail form Will Walters, Aspen Environmental Group, to James Adams, California Energy Commission, on October 23, 2006.

CALPINE (Calpine Corporation/Hatfield). 2001. Inland Empire Energy Center, Application for Certification. Submitted to the California Energy Commission, August 17, 2001.

Caltrans (California Department of Transportation) 2006. District 8, Traffic and Vehicle Systems Data Unit. Transportation Systems Accident Report generated 03/24/2006 for accident date range between 01/01/2004 and 12/31/2004.

CEC (California Energy Commission). 2006. Staff Data Requests 1 through 80. March 15, 2006

Ferrara 2007. Personal communication with Robert Ferrara, Project Manager, North Menifee Residential Development, and James Adams on April 10, 2007.

Riverside County, 2003. Circulation Element of the Riverside County General Plan. Adopted October, 2003.

Riverside County, 2006a . Zoning Ordinance No. 348; Section 18.12: Off-Street Vehicle Parking and Parking Design Standards.

Riverside County, 2007. Advisory Conditional Use Permit for the Sun Valley Project. March 13, 2007.

Riverside County Transportation Commission 2007. Personal communication between Claudia, Property Manager, and James Adams on March 29, 2007.

Romoland School District. 2006c. Additional Traffic Information in Response to a Request by Valle del Sol Energy LLC. Submitted to the California Energy Commission, December 13, 2006.

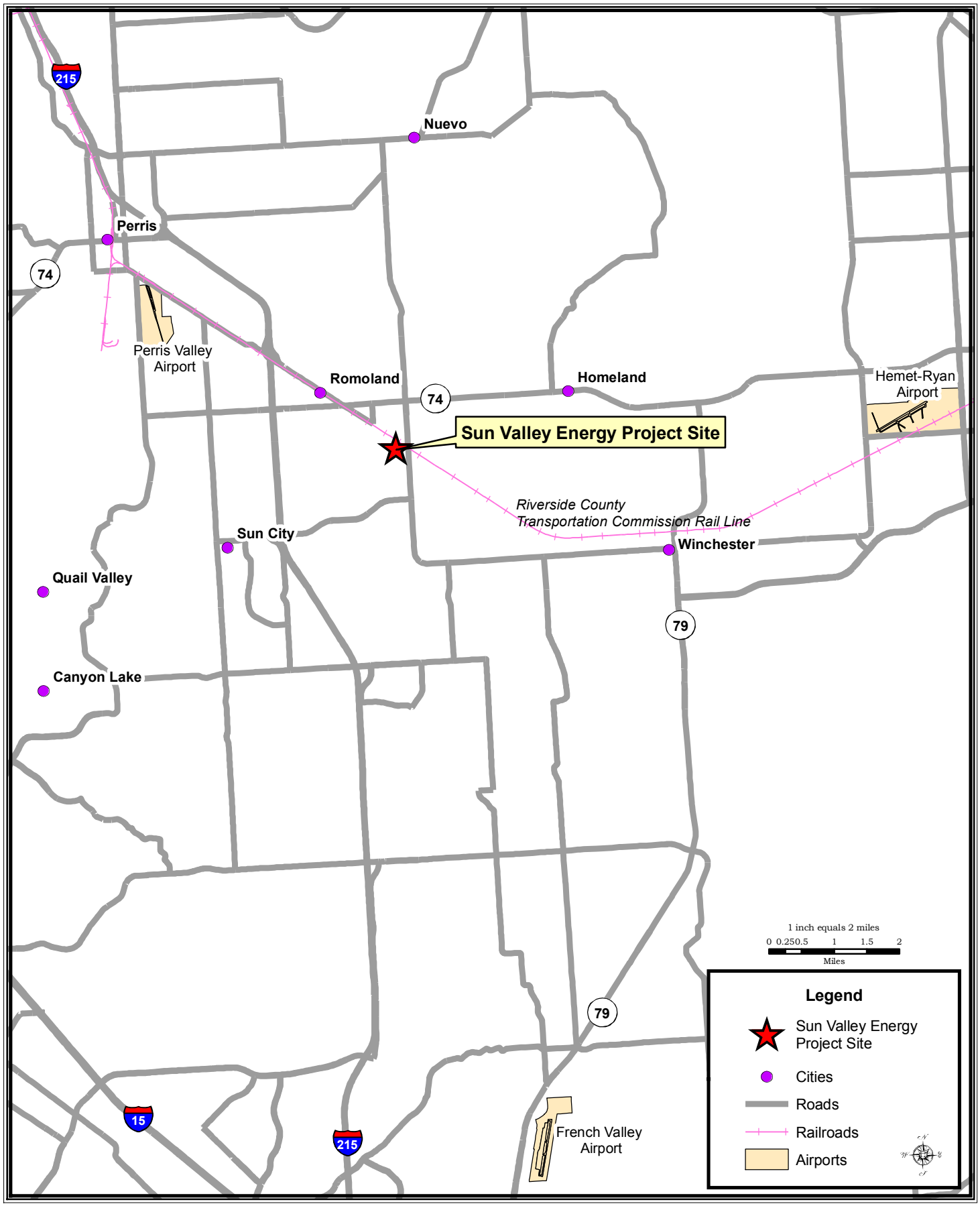
Romoland School District 2007. Personal communication between Dave Gucckert and James Adams on April 3, 2007.

Valle del Sol Energy, LLC. 2005b. Application of Certification for Sun Valley Energy Project, Volumes 1 and 2. Submitted to the California Energy Commission, December 1, 2005.

Valle del Sol Energy, LLC. 2006a. Data Adequacy Supplement for Valle del Sol Energy, LLC. Application for Certification. January 12, 2006.

TRAFFIC & TRANSPORTATION - FIGURE 1

Sun Valley Energy Project - Regional Transportation

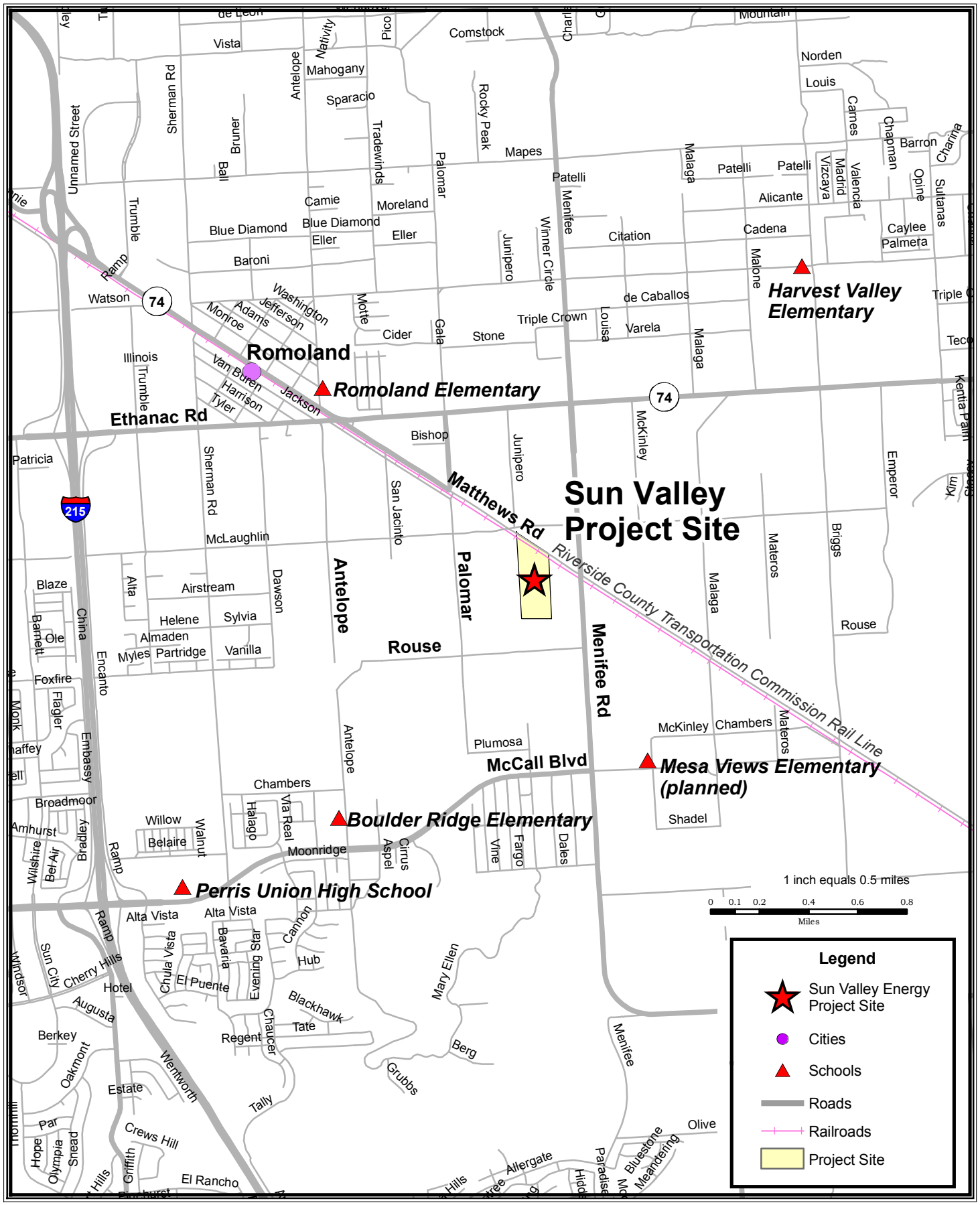


CALIFORNIA ENERGY COMMISSION - ENERGY FACILITIES SITING DIVISION, APRIL 2007

SOURCE: California Energy Commission

TRAFFIC & TRANSPORTATION - FIGURE 2

Sun Valley Energy Project - Regional Transportation



CALIFORNIA ENERGY COMMISSION - ENERGY FACILITIES SITING DIVISION, APRIL 2007

SOURCE: California Energy Commission

TRANSMISSION LINE SAFETY AND NUISANCE

Obed Odoemelam, Ph.D.

SUMMARY OF CONCLUSIONS

The design and operational plan for the proposed Sun Valley Energy Project's (SVEP) transmission line would be adequate for safe operation while ensuring that the generated electric and magnetic fields are managed to an extent the California Public Utilities Commission (CPUC) considers appropriate in light of the available health effects information. The long-term magnetic field exposure of particular health concern would be insignificant as the line would be routed far enough away from all identified locations for residential developments. On-site worker or public exposure would be short-term and at levels expected from Southern California Edison (SCE) lines of similar designs and current-carrying capacity. Since the proposed design would be adequate to minimize the safety and nuisance impacts of specific concern to staff, staff does not recommend further mitigation and recommends approval of the proposed design and operational plan. Staff's recommended conditions of certification are intended to ensure implementation of related mitigation measures as proposed by the applicant.

INTRODUCTION

The purpose of this Preliminary Staff Assessment (PSA) is to assess the proposed line's construction and operational plan for incorporation of measures necessary to minimize the related field and non-field impacts whose reduction remains the focus of current laws, ordinances regulations and standards (LORS). If the proposed plan is found adequate, staff would recommend approval with respect to the issues of concern in this analysis; if not, staff would recommend appropriate revisions. Staff's analysis focuses on the following issues as related primarily to the physical presence of the line and related facilities, or secondarily, to the physical interactions of their electric and magnetic fields:

- Aviation safety,
- Interference with radio-frequency communication,
- Audible noise,
- Fire hazards,
- Hazardous shocks,
- Nuisance shocks, and
- Electric and magnetic field (EMF) exposure.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

TRANSMISSION LINE SAFETY AND NUISANCE TABLE 1
Laws, Ordinances, Regulations and Standards (LORS)

Applicable LORS	Description
Aviation Safety	
Federal	
Title 14, Part 77 of the Code of Federal Regulations (CFR),"Objects Affecting the Navigable Space"	Describes the criteria used to determine the need for a Federal Aviation Administration (FAA) "Notice of Proposed Construction or Alteration" in cases of potential obstruction hazards.
FAA Advisory Circular No. 70/7460-2H, " Proposed Construction and/or Alteration of Objects that May Affect the Navigation Space"	Addresses the need to file the "Notice of Proposed Construction or Alteration" (Form 7640) with the FAA in cases of potential for an obstruction hazard.
FAA Advisory Circular 70/460-1G, "Obstruction Marking and Lighting"	Describes the FAA standards for marking and lighting objects that may pose a navigation hazard as established using the criteria in Title 14, Part 77 of the CFR.
Interference with Radio Frequency Communication	
Federal	
Title 47, CFR, Section 15.2524, Federal Communications Communication (FCC)	Prohibits operation of devices that can interfere with radio-frequency communication.
State	
California Public Utilities Commission (CPUC) General Order 52 (GO 52)	Governs the construction, and operation of power and communications lines to prevent or mitigate interference.
Audible Noise	Not to exceed applicable local noise ordinances – (no design-specific federal or state regulations for noise from transmission lines).
Hazardous and Nuisance Shocks	
State	
CPUC GO-95, "Rules for Overhead Electric Line Construction"	Governs clearance requirements to prevent hazardous shocks, grounding techniques to minimize nuisance shocks, and maintenance and inspection requirements.
Title 8, California Code of regulations (CCR) Section 2700 et seq, "High Voltage Safety Orders"	Specifies requirements and minimum standards for safely installing, operating, working around, and maintaining electrical installations and equipment.

Applicable LORS	Description
National Electrical Safety Code	Specifies grounding procedures to limit nuisance shocks. Also specifies minimum conductor ground clearances.
Industry Standards	
Institute of Electrical and Electronics Engineers (IEEE) 1119, "IEEE Guide for Fence Safety Clearances in Electric-Supply Stations"	Specifies the Guidelines for grounding-related practices within the right-of-way and substations.
Electric and Magnetic Fields	
State	
GO-131-D, CPUC "Rules for Planning, and Construction of Electric Generation Line and Substation Facilities in California"	Specifies application and noticing requirements for new line construction including EMF reduction.
CPUC Decision 93-11-013	Specifies CPUC requirements for reducing power frequency electric and magnetic fields.
Industry Standards	
American national Standards Institute (ANSI/IEE) 644-1944 Standard Procedures for Measurement of Power Frequency Electric and Magnetic Fields from AC Power Lines	Specifies standard procedures for measuring electric and magnetic fields from an operating electric line.
Fire Hazards	
State	
14 CCR Sections 1250-1258, "Fire Prevention Standards for Electric Utilities"	Provides specific exemptions from electric pole and tower firebreak and conductor clearance standards and specifies when and where standards apply.
GO-95, CPUC, "Rules for Overhead Electric Line Construction," Section 35	Covers all aspects of design, construction, operation, and maintenance of electrical transmission line and fire hazards.

SETTING

According to information from the applicant, Valle del Sol Energy, (VSE) (2005b, pages 2-1, 2-2, 5-1, 8.6-1, 8.6-2, 8.6-9, 8.7-11, and 9-13), the power from the proposed SVEP would be transmitted to the SCE transmission grid through SCE's Valley Substation to the north using a 600-foot, overhead, 115-kilovolt (kV) line. The site was chosen in part for its proximity to the Valley Substation and to minimize the length of the transmission line. The proposed line would exit from the north side of the project site and cross over an area zoned for manufacturing and future residential uses as it extends to the designated connection point at the Valley Substation. While present zoning designations identify the project area as currently changing from rural/agricultural uses to a sub-

urban area of the industrial, commercial, and residential uses (to accommodate the areas growing population), the nearest proposed residential development (the Menifee Valley Ranch) would be located approximately 1,000 feet east of the project site. This means that the route would be far enough removed from any future residences and that the residential field exposure at the root of the health concern of recent years would be insignificant during operations.

As noted in the **Project Description** section, the proposed line would consist of the segments listed below:

- An on-site 115-kV switchyard;
- The 600 foot-long 115-kV line from the project's on-site switchyard to SCE's Valley Substation to the northeast; and
- Two 90 foot tall monopoles, one on the project site, and one across Laughlin Road.

The line's basic configuration would derive from SCE's safety and field-reducing design guidelines as applied to their 115-kV lines of a similar current-carrying capacity. The applicant has provided related dimensional support structure drawings along with applicable safety, reliability, and field strength reduction information (VSE 2005b, pp. 5-11 through 5-13). The height would be approximately 90 ft.

Since the proposed transmission line would be designed and operated according to standard SCE practices, its design-driven electric and magnetic field strengths (and, therefore, potential contribution to existing area field levels) should (in keeping with present CPUC policy) be at the same level as other SCE lines of the same voltage and current-carrying capacity.

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

The potential for ensuring line safety and optimum EMF reduction without impacting line efficiency, maintainability and reliability, depends on compliance with the listed LORS whose related mitigation measures have been established as adequate to maintain such impacts below levels of potential significance. Thus, if staff determines that the project would comply with applicable LORS, we would conclude that any transmission line safety and nuisance impacts would be less than significant. The nature of these individual impacts is discussed below together with the potential for compliance with the LORS that apply.

DIRECT IMPACTS AND MITIGATION

Aviation Safety

A potential hazard to area aircraft from potential collisions with structures in the navigable air space may require the filing of a "Notice of Proposed Construction or Alteration" (Form 7640) with the FAA as noted in the LORS section above. The need for such a notice depends on factors related to the height of the structure, the slope of an

imaginary surface from the end of nearby runways to the top of the structure, and the length of the runway involved. FAA notification is required for all structures over 200 feet, and may be required for structures under 200 feet in restricted airspaces near airports. The dimensions of the restricted airspace are specified according to the lengths of the specific runways involved. For airports with runways of longer than 3,200 feet, the restricted airspace would extend to 20,000 feet from the runway. For airports with runways of 3,200 feet or less, the restricted air space would be reduced to 10, 000 feet. For heliports, the restricted air space would be 5,000 feet.

As noted by the applicant (VSE 2005b, p. 5-13) the height of the line support would, at 90 feet, be significantly below the 200 feet FAA notification threshold for aviation safety for all area airports. However, FAA notification may be triggered for below-threshold heights by the slope and distance-related factors that also bear on aircraft safety. Upon notification, the FAA would conduct its safety assessment and issue a related permit as appropriate. The nearest public airport to SVEP and related line is Perris Airport approximately 4.0 miles and not within the restricted airspace. Therefore, staff considers the proposed transmission lines and related facilities as not posing a significant aviation hazard to area aircraft. No FAA “Notice of Construction or Alteration” would be required.

Interference with Radio-Frequency Communication

Radio-frequency interference is one of the indirect effects of transmission line operation. Such interference is due to the action of the electric fields on the surface of the energized conductor. The process involved is known as corona discharge, but is referred to as spark gap electric discharge when it occurs within gaps between the conductor and insulators or metal fittings. When generated, such noise manifests itself as perceivable interference with AM radio or television signal reception or interference with other forms of radio communication. Since the level of interference depends on factors such as line voltage, distance from the line to the receiving device, orientation of the antenna, signal level, line configuration and weather conditions, maximum interference levels are not specified as design criteria for modern transmission lines. The level of any such interference usually depends on the magnitude of the electric fields involved and the distance from the line. Just as important, and maybe more so, is the specific cause of the interference. Loose hardware or other physical problems can cause the largest amount of interference, and are easily corrected by tightening or replacing the responsible hardware. The potential for such impacts is, therefore, minimized by reducing electric fields, locating the line away from inhabited areas, and by proper maintenance and responding promptly to any complaints. Most such complaints are normally linked to correctable hardware installation problems. Since corona discharge increases line energy losses, utilities have a vested interest in correcting these situations.

The proposed SVEP line would be built and maintained according to standard SCE practices that minimize surface irregularities and discontinuities. Moreover, the potential for such corona-related interference is usually of concern for lines of 345-kV and above, not the proposed 115-kV lines. Low-corona designs would be used as with SCE lines of similar voltage rating. Since these existing SCE lines do not generally produce the corona-related complaints, staff does not expect any corona-related radio-frequency interference or related complaints in the general project area.

Audible Noise

Designs that reduce electric field intensity are not specifically mandated by Federal or state regulations for limiting audible noise. As with radio noise, audible noise is limited instead through design, construction or maintenance practices established from industry research and experience. Audible noise usually results from the action of the electric field at the surface of the line conductor and could be perceived as a characteristic crackling, frying, or hissing sound or hum, especially in wet weather. Since the audible noise level depends on the strength of the line electric field, the potential for perception can be assessed from estimates of the field strengths expected during operation. Such noise is usually generated during rainfall, but mainly from overhead lines of 345 kV or higher. It is, therefore, not generally expected at significant levels from lines of less than 345 kV as proposed for SVEP . Research by the Electric Power Research Institute (EPRI 1982) has validated this position by showing the fair-weather audible noise from modern transmission lines to be generally indistinguishable from background noise at the edge of a 100-ft right-of-way.

The low-corona design to be used for the proposed line is the same that are used for similar SCE transmission lines to minimize the potential for corona-related audible noise. This means that the proposed line operation would be unlikely to add significantly to current background noise levels in the project area. For an assessment of the noise from the proposed transmission lines and related facilities, please refer to staff's analysis in the **Noise and Vibration** section.

Fire Hazards

The fire hazards addressed through the above-referenced LORS are those that could be caused by sparks from conductors of overhead lines, or that could result from direct contact between the line and nearby trees and other combustible objects.

Standard fire prevention and suppression measures for all SCE lines would be implemented for the proposed SVEP line (VSE 2005b, pages 5-14 and 5-16). The applicant's intention to ensure compliance with the clearance-related aspects of GO-95 would be an important part of this compliance approach.

Hazardous Shocks

Hazardous shocks are those that could result from direct or indirect contact between an individual and the energized line. Such shocks are capable of causing serious physiological harm or death and remain a driving force in the design and operation of transmission and other high-voltage lines.

No design-specific federal regulations have been established to prevent hazardous shocks from overhead power lines. Safety is assured within the industry through compliance with the requirements that specify the national standard minimum safe operating clearances applicable in areas where the line might be accessible to the public.

The applicant's stated intention to implement the GO-95 measures against direct contact with the energized line (VSE 2005b, pages 5-13 and 5-14) would serve to

minimize the risk of hazardous shocks. Staff's recommended condition of certification **TLSN-1** would be adequate to ensure implementation of the necessary mitigation measures.

Nuisance Shocks

Nuisance shocks are caused by current flow at levels generally incapable of causing significant physiological harm. They result mostly from direct contact with metal objects electrically charged by fields from energized transmission lines. Such electric charges are induced in different ways by the line electric and magnetic fields.

There are no design-specific Federal or state regulations to limit nuisance shocks in the transmission line environment. For modern overhead high-voltage lines, such shocks are effectively minimized through grounding procedures specified in the National Electrical Safety Code (NESC) and the joint guidelines of the American National Standards Institute (ANSI) and the Institute of Electrical and Electronics Engineers (IEEE). Applicant will be responsible for ensuring compliance with these grounding-related practices within the right-of-way.

The potential for nuisance shocks around the proposed line would be minimized through standard industry grounding practices (VSE 2005b, page 5-13 and 5-15).

Electric and Magnetic Field Exposure

The possibility of deleterious health effects from EMF exposure has increased public concern in recent years about living near high-voltage lines. Both fields occur together whenever electricity flows, hence the general practice of describing exposure to them together as EMF exposure. The available evidence as evaluated by CPUC, other regulatory agencies, and staff, has not established that such fields pose a significant health hazard to exposed humans. There are no health-based Federal regulations or industry codes specifying environmental limits on the strengths of fields from power lines. Most regulatory agencies believe, as does staff, that health-based limits are inappropriate at this time. They also believe that the present knowledge of the issue does not justify any retrofit of existing lines.

Staff considers it important, as does the CPUC, to note that while such a hazard has not been established from the available evidence, the same evidence does not serve as proof of a definite lack of a hazard. Staff, therefore, considers it appropriate, in light of the present uncertainty, to recommend reduction of such fields as much as is feasible without affecting safety, efficiency, reliability and maintainability.

While there is considerable uncertainty about EMF health effects, the following facts have been established from the available information and have been used to establish existing policies:

- Any exposure-related health risk to the exposed individual will likely be small.
- The most biologically significant types of exposures have not been established.
- Most health concerns are about the magnetic field.

- The measures employed for such field reduction can affect line safety, reliability, efficiency, and maintainability, depending on the type and extent of such measures.

State

The CPUC, which regulates the installation and operation of high-voltage lines in California, has determined that only no-cost or low-cost measures are presently justified in any effort to reduce power line fields beyond levels existing before the present health concern arose. The CPUC has further determined that such reduction should be made only in connection with new or modified lines. It requires each utility within its jurisdiction to establish EMF-reducing measures and incorporate such measures into the designs for all new or upgraded power lines and related facilities within their respective service areas. The CPUC further established specific limits on the resources to be used in each case for field reduction. Such limitations were intended by the CPUC to apply to the cost of any redesign to reduce field strength or relocation to reduce exposure. Publicly owned utilities, which are not within the jurisdiction of the CPUC, voluntarily comply with these CPUC requirements. This CPUC policy resulted from assessments made to implement CPUC Decision 93-11-013.

In keeping with this CPUC policy, staff requires a showing that each proposed overhead line would be designed according to the EMF-reducing design guidelines applicable to the utility service area involved. These field-reducing measures can impact line operation if applied without appropriate regard for environmental and other local factors bearing on safety, reliability, efficiency, and maintainability. Therefore, it is up to each applicant to ensure that such measures are applied in ways that prevent significant impacts on line operation and safety. The extent of such applications would be reflected by ground-level field strengths as measured during operation. Field strengths are specified for a height of one meter above the ground, in units of kilovolts per meter (kV/m), for the electric field, and milligauss (mG) for the companion magnetic field. Their magnitude depends on line voltage (in the case of electric fields), the geometry of the support structures, degree of cancellation from nearby conductors, distance between conductors and, in the case of magnetic fields, amount of current in the line.

Since each new line in California is currently required by the CPUC to be designed according to the EMF-reducing guidelines of the main electric utility in the service area involved, its fields are required under this CPUC policy to be similar to fields from similar lines in that service area. Designing the proposed project line according to existing SCE field strength-reducing guidelines would constitute compliance with the CPUC requirements for line field management.

Industrial Standards

The present focus is on magnetic fields because only they can penetrate soil, vegetation, buildings and other materials to produce the residential exposures at the root of the health concern of recent years. As one focuses on the magnetic fields from the more visible overhead transmission and other high-voltage power lines, staff considers it important, for perspective, to note that an individual in a home could be exposed to much stronger fields while using some common household appliances (National Institute of Environmental Health Services and the U.S Department of Energy, 1995). The difference between these types of field exposures is that the higher-level,

appliance-related exposures are short-term, while the exposure from power lines is lower level, but long-term. Scientists have not established if either of these types of exposures are biologically meaningful in the individual. Staff notes such exposure differences only to show that high-level magnetic field exposures regularly occur in areas other than around high-voltage power lines.

Specific field strength-reducing measures would be incorporated into the design of the proposed transmission lines to ensure the field strength minimization currently required by the CPUC. The field reduction measures to be applied include the following:

1. Increasing the distance between the conductors and the ground;

2. Reducing the spacing between the conductors;

3. Minimizing the current in the line; and

4. Arranging current flow to maximize the cancellation effects from interacting of conductor fields.

Since optimum field-reducing measures would be incorporated into the proposed line design, staff considers further mitigation to be unnecessary, but would seek to validate the applicant's assumed efficiency of EMF field strength reductions. It is for this that staff recommends **TLSN-2** to assess field strengths at the expected points of maximum levels.

HEALTH AND SAFETY RISKS TO CHILDREN

The field-reducing and safety designs for the proposed and similar lines were established to ensure the protection of both adults and children against the impacts of concern in this analysis. Therefore, operations would not pose a significant risk to any children in the immediate vicinity.

CUMULATIVE IMPACTS AND MITIGATION

Since the proposed transmission lines would be designed according to applicable field-reducing SCE guidelines (as currently required by the CPUC for effective field management), staff expects the resulting fields to be similar in intensity to fields from SCE lines of the similar voltage and current-carrying capacity. Any contribution to cumulative area exposures would be at similar levels. It is this similarity in intensity that constitutes compliance with current CPUC requirements on EMF management. The actual field strengths and contribution levels for the proposed line design would be assessed from the results of the field strength measurements specified in Condition of Certification **TLSN-2**.

COMPLIANCE WITH LORS

As previously noted, current CPUC policy on safe EMF management requires that any high-voltage line within a given area be designed to incorporate the field strength-reducing guidelines of the main area utility lines to which the line is interconnected. The

utility in this case is SCE. Since the proposed project lines and related switchyard would be designed according to the respective requirements of GO 95, GO 52, GO-131-D, and Title 8, Section 2700 et seq. of the California Code of Regulations and operated and maintained according to current SCE guidelines on line safety and field strength management, staff considers the proposed design and operational plan to be in compliance with the LORS identified in this analysis. The actual contribution to the area's field exposure levels would be assessed from results of the field strength measurements required in Condition of Certification **TLSN-2**.

CONCLUSIONS

Since electric or magnetic field health effects have neither been established nor ruled out for the proposed SVEP and similar transmission lines, the public health significance of any related field exposures cannot be characterized with certainty. The only conclusion to be reached with certainty is that the proposed line design and operational plan would be adequate to ensure that the generated electric and magnetic fields are managed to an extent CPUC considers appropriate in light of the available health effects information. Long-term, mostly residential magnetic field exposure at the root of health concern of recent years would be insignificant for the proposed line given the distance from all proposed residential developments. On-site worker or public exposure would be short term and at levels expected for SCE lines of similar designs and current-carrying capacity. Such exposure is well understood and has not been established as posing a significant human health hazard.

The potential for nuisance shocks would be minimized through grounding and other field-reducing measures to be implemented in keeping with current SCE guidelines (reflecting standard industry practices). These field-reducing measures would maintain the generated fields within levels not generally associated with radio-frequency interference or audible noise. The potential for hazardous shocks would be minimized through compliance with the height and clearance requirements of General Order 95. Compliance with Title 14, California Code of Regulations, Section 1250, would minimize fire hazards. Nuisance and hazardous shocks would be minimized through standard SCE practices for similar lines. The proposed line and related facilities are not near enough to any airport to pose an aviation hazard according to current FAA criteria; therefore, staff does not consider it necessary to recommend location changes on the basis of a potential hazard to area aviation. The use of low-corona line design, together with appropriate corona-minimizing construction practices, would minimize the potential for corona noise and its related interference with radio-frequency communication in the area around the proposed route.

The general lack of residences in the immediate vicinity of the proposed route, the short 600-foot span together with staff's finding that there would be no significant direct or indirect impacts from line operations means that there would be no impacts on area's minority population from the construction and operation of the SVEP transmission lines.

Since the proposed transmission lines would be designed to minimize the safety and nuisance impacts of specific concern to staff, staff does not recommend further mitigation and recommends approval of the proposed design and operational plan. If

such approval were granted, staff would recommend that the Energy Commission adopt the conditions of certification specified below to ensure implementation of the measures necessary to achieve the field reduction and line safety specified by the applicant.

PROPOSED CONDITIONS OF CERTIFICATION

TLSN-1 The project owner shall construct the proposed transmission lines according to the requirements of CPUC's GO-95, GO-52, GO-131-D, Title 8, and Group 2. High Voltage Electrical Safety Orders, Sections 2700 through 2974 of the California Code of Regulations, and SCE's EMF-reduction guidelines.

Verification: At least 30 days before starting construction of the transmission line or related structures and facilities, the project owner shall submit to the Compliance Project Manager (CPM) a letter signed by a California registered electrical engineer affirming that the lines will be constructed according to the requirements stated in the condition.

TLSN-2 The project owner shall engage a qualified consultant to measure the strengths of the line electric and magnetic fields from the line before and after they are energized. Measurements should be made at representative points (a) along the proposed route at locations of expected maximum intensities (b) at similar locations for SCE lines of the same voltage and similar current-carrying capacity. These measurements shall be completed not later than six months after the start of operations.

Verification: The project owner shall file copies of the pre-and postenergization measurements and measurement of a representative SCE line, with the CPM within 60 days after completion of the measurements.

REFERENCES

VSE (Valle del Sol Energy, LLC) 2005b. Application for Certification for the Sun Valley Energy Project. Volumes I and II. Submitted to the California Energy Commission on December 1, 2005.

Electric Power Research Institute (EPRI) 1982. Transmission Line Reference Book: 345 kV and Above.

Energy Commission Staff 1992. High Voltage Transmission Lines: Summary of Health Effects Studies. California Energy Commission Publication, P700-92-002.

National Institute of Environmental Health Services 1998. An Assessment of the Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields. A Working Group Report, August 1998.

BIBLIOGRAPHY ON EMF AND HEALTH

Belanger K, Leaderer B, Hellenbrand K et al. 1998. Spontaneous Abortion and exposure to Electric Blankets and heated waterbeds. Epidemiology 9: 36-42.

California Public Utilities Commission 1989. Potential Health Effects of Electric and Magnetic Field from Electric Power Facilities. A Report to the California Legislature by the California Public Utilities Commission in Cooperation with the California Department of Health Services. California Department of Health Services, Berkeley, California.

Carpenter DO and Ayraptan S 1994. Biological Effects of Electric and Magnetic Fields. Vol. 2. Academic Press New York.

Chernorr N, Rogers JM, and Kavet R 1992. A Review of the Literature on Potential Reproductive and Developmental Toxicity of Electric and Magnetic Fields. Toxicol 74: 91-126.

Cleary SF 1993. A Review of In Vitro Studies: Low-Frequency Electromagnetic Fields. Am Ind Hyg Assoc. J 54 (4): 178-185.

Colorado Universities 1992. Investigations in the Power-Frequency EMF and its Risks to Health: A Review of the Scientific Literature. Universities Consortium on EMF, Colorado.

Coogan PF, Clapp RW, Newcomb PA, Wenzl TB, Bogdan G, et al. 1996. Occupational Exposure to 60-Hz Magnetic Fields and Risk of Breast Cancer in Women. Epidemiology 7 (5) 459-464.

Doynov P, Cohen HD, Cook MR, and Graham C 1999. Test Facility for Human Exposure to AC and DC Magnetic Fields. Bioelctromagnetics 20: 101-111.

European Commission 1997. Possible Health Implications of Subjective Symptoms and Electromagnetic Field. A Report Prepared by a European Group of Experts for the European Commission. DGV National Institute for Working Life, Solna, Sweden.

Feychting M, and Ahlbom A 1993. Magnetic Fields and Cancer in Children Residing Near Swedish High-Voltage Power Lines. Am. J. Epidemiol. 138: 467-481.

Feychting M, Forssen U, Floderus B 1997. Occupational and Residential Magnetic Field Exposure and Leukemia and the Central Nervous System Tumors. Epidemiology 8 (4): 384-389.

Green LM, Miller AB, et al., and 1999. Childhood Leukemia and Personal Monitor of Residential Exposure to Electric and Magnetic Fields in Ontario, Canada. Cancer Causes, Control 10: 233-244.

Graham C, Cook M, Gerkovich M ET a., 2001. Examination of Melatonin Hypothesis and Women Exposed at Night to EMF or Bright Light. Environmental Health Perspectives 109 (5) 501-507.

Grant L 1995. What is Electrical Sensitivity In: The Electrical Sensitivity Handbook. How Electromagnetic Fields Can Make People Sick. Lucinda Grant Wedon Publishing Prescott, Arizona.

Hendee WR, and Boteler JC 1994. The Question of Health Effects from Exposure to Electromagnetic Fields. Health Physics 66 (2): 127-136.

Illinois Department of Public Health 1992. Possible health Effects of Extremely Low-Frequency Electric and magnetic Field Exposure: A review. Report to the Illinois State Legislature by the Illinois Department of Public Health in Coordination with the Illinois Environmental Protection Agency. March 1992.

Juutlilainnen P, Saarikoski S, Laara E, and Suomo E 1993. Early Pregnancy Loss and Exposure to 50-Hertz Exposure to Magnetic Fields. Bioelectromagnetics 14: 229-236.

Kavet R, and Tell RA 1991. VDTs: Field Levels, Epidemiology, and Laboratory Studies. Health Physics 61: 47-57.

Lindbohm ML, Hietamen M, Kyyomen P, Sallmenn, Von Nandelstatadh P, ET al, 1992. Magnetic Fields and Video Display Terminals and Spontaneous Abortion. Am J Epidemiol 136: 1041-1051.

Lee GM, Neutra RR, Hrostova L, Yost M, and Hiatt RA 2001. The Use of Electric Bed Heaters and Risk of Clinically Recognized Spontaneous Abortions. Epidemiology 9: 36-42.

Linet MS, Hatch EE, Kleinman RA, Robinson LL, Kaune WT, Friedman DR, et al 1997. Residential Exposure to Magnetic Fields and Acute Lymphoblastic Leukemia in Children. N England J Med 337:1-7.

Mack W, Preston-Martin S, Peters JM 1991. Astrocytoma Risk Related to Job Exposure to Electric and Magnetic Fields. Bioelectromagnetics 12 (10): 57-66.

McCann J, Dietrich F, Rafferty C, and Martin AO 1993. A Critical Review of the Genotoxic Potential of Electric and Magnetic Fields. Mut. Res. 297, 61-95.

Michaels J, Schuz J, Meniert R, Merge M, Griget JP, and Kaatsch P ET al, 1999. Childhood Leukemia and Electromagnetic Fields: Results of Population-Based Case-Control Study in Germany. Cancer Causes, Control 8: 167-174.

Milham S JR, 1985. Mortality in Workers Exposed to Electromagnetic Fields. Environmental Health Perspectives 62: 297-300.

National Institute of Environmental Health Resources and US Department of Energy 1995. Questions and Answers about EMF-Electric and Magnetic Fields Associated with Use of Electric Power. DOE/EE-0040.

National Research Council 1997. Possible Health Effects of Exposure to Residential Electric and Magnetic fields. National Academy press, Washington.

VISUAL RESOURCES

James Adams

SUMMARY OF CONCLUSIONS

Energy Commission staff analyzed the potential visual impacts of the proposed Sun Valley Energy project (SVEP) in accordance with the California Environmental Quality Act (CEQA), and the project's compliance with applicable laws, ordinances, regulations, and standards (LORS). Effective implementation of the applicant's proposed mitigation measures and staff's recommended conditions of certification would reduce adverse visual impacts from the project to a less than significant level, and ensure that the project complies with the applicable LORS regarding visual resources.

INTRODUCTION

Visual resources are the natural and human-made features of the environment where a proposed project is located. This analysis focuses on whether construction and operation of the SVEP would cause significant visual impact(s) under the CEQA, and whether the project would be in compliance with applicable LORS.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

VISUAL RESOURCES Table 1 provides a general listing of applicable LORS that staff has evaluated to determine the proposed project's compliance. The project's consistency with specific LORS is discussed in **VISUAL RESOURCES Table 2** in this analysis.

VISUAL RESOURCES Table 1
Laws, Ordinances, Regulations, and Standards

Jurisdiction & Applicable LORS	LORS Description
Federal	The proposed project is not located on federally administered public lands and is not subject to federal regulations pertaining to visual resources.
State	There are no officially designated State Scenic Highways or Scenic Routes within the project viewshed. There are no state regulations pertaining to scenic resources applicable to the project.
Local	
Riverside County General Plan	
Land Use (LU) Element – Scenic Corridors	Preserve and protect outstanding scenic vistas and visual features for the enjoyment of the traveling public.
LU 13.1	Ensure that the design and appearance of new landscaping, structures, equipment, signs, or grading within Designated and Eligible State and County Scenic Highway corridors are compatible with the surrounding scenic setting or environment.
LU 13.3	Prohibit offsite outdoor advertising displays that are visible from Designated and Eligible State and County Scenic Highways.
LU 13.6	Require that the size, height, and type of on-premise signs visible from Designated and Eligible State and County Scenic Highways be the minimum necessary.
LU 13.7	The design, materials, color, and location of the signs shall blend with the environment, utilizing natural materials where possible.
Circulation (C) Element – Scenic Corridors	Preserve scenic routes that have exceptional or unique visual features in accordance with Caltrans' Scenic Highways Plan.
C 19.1	
Multipurpose Open Space (OS) Element -Scenic Resources and Corridors	Identify and conserve the skylines, view corridors, and outstanding vistas within Riverside County.
OS 21.1	Design developments within designated scenic highway corridors to balance the objectives of maintaining scenic resources with accommodating compatible land uses.
OS 22.2	
Sun City/Menifee Valley Community Plan (SCMVCP)	Adhere to the Riverside County lighting requirements for standards that are intended to limit light leakage and spillage that may interfere with the operations of the Palomar Observatory.
Mt. Palomar Nighttime Lighting Policy SCMVCP 12.1	

SETTING

REGIONAL SETTING

The SVEP is proposed to be constructed approximately 20 miles south of the City of Riverside, just east of the City of Perris, and about 1mile southeast of the unincorporated community of Romoland. The project site is a 20-acre parcel currently used for agricultural purposes, though it has a Manufacturing-Service Commercial zoning designation. The site is just south of Matthews Road and the Riverside County Transportation Commission (RCTC) Railroad line, and 900 feet west of Menifee Road. The project site is located in Perris Valley which consists of a relatively flat plain with small, rocky hills and treeless buttes that rise up to several hundred feet above the valley floor. Foreground views from the proposed project site consist of flat agricultural lands to the west and south, transmission lines, electrical substation and industrial facilities to the north and west, and a new residential development to the east. **Visual Resources Figure 1** shows the view looking north from the intersection of Junipero and Rouse Roads towards the project site, which is in the foreground, the Southern California Edison (SCE) Valley substation, also in the foreground, and foothills in the background. From the east, views toward the site are generally open, though existing trees partially screen the site. Various buttes in the local area block views of the project site for some residents.

The Inland Empire Energy Center (IEEC), an 800-megawatt power plant currently under construction, is approximately 0.5-mile northwest of the proposed project site. About 800 feet northwest of the site, there are several industrial facilities: a concrete block plant, a moderately-sized foundry, and a crematorium (VSE 2005b, pg. 8.13-2).

Travelers on local roads such as Menifee and McCall Roads looking west and north towards the project site have a broad expansive view of agricultural areas with buttes in the middleground and mountains in the background. These views include commercial and industrial facilities, and two widely separated residential areas.

As noted in the applicant's Regional Setting of the Visual Resources section of the Application for Certification (AFC), the area around the project is undergoing a rapid transition from a rural or quasi-rural appearance to a more uniformly urbanized level of development (VSE 2005b, pg. 8.13-2). The Menifee Valley Ranch residential development, east of Menifee Road and near the proposed SVEP, is typical of the kind of projects that will be built in the next few years. These include planned residential developments near State Route (SR)-74, Briggs Road, and McLaughlin Road (VSE 2005a, pg. 8.6-10). Recent information from the Riverside County Planning Department indicates that there are several commercial projects with pending approvals which include office, medical complex, retail-commercial and shopping projects proposed in the vicinity of the SVEP, and the growing number of residential projects (Riverside County, 2007b).

PROJECT, SITE, AND VICINITY DESCRIPTION

This section describes the aspects of the proposed project that may have the potential to cause adverse impacts to visual resources. Please refer to the **PROJECT DESCRIPTON** section of the PSA for a more comprehensive description of the project.

Power Plant

The most visible components of the proposed power plant would include 5 90-foot tall exhaust stacks, 5 68-foot tall combustion turbine silencers, 5 47-foot tall air filters, and a 39-foot tall 5-cell cooling tower.

The applicant has proposed landscaping using plant species appropriate for the setting that would provide screening of the power plant facilities from both nearby and distant views (VSE 2005b, pg. 8.13-18). The applicant has also proposed treating the exteriors of all project structures with a neutral tan color intended to optimize visual integration with the surrounding environment.

Linear Facilities and Construction Laydown Area

A proposed 600-foot long 115-kilovolt (kV) transmission line would directly connect the SVEP to the power grid through the nearby SCE Valley Substation. The new transmission line would require two to four new steel poles. The applicant proposes the new towers be neutral tan in color and the insulators and conductors be non-reflective (VSE 2005b, pg. 8-113-17). Natural gas, non-reclaimable wastewater, potable water, and sanitary sewer pipelines would be buried underground. The construction of the underground natural gas pipeline would result in a noticeable but temporary visual disruption along 750 feet of McLaughlin Road between the SVEP and the IEEC site. The potable and process water pipelines will require small amounts of excavation. During construction activities, equipment (cranes), excavated piles of dirt, concrete and asphalt pavement, construction personnel and vehicles would be visible.

An 18.8-acre construction laydown area would be located along the eastern boundary of the project site. Access to the laydown area would be via Matthews Road. Staff has proposed Condition of Certification **VIS-3** to require the restoration of the laydown area upon the completion of the SVEP. With the effective implementation of **VIS-3** there would be no adverse visual impact from the area previously used as the project laydown area.

The ground surface areas affected by the various underground linear facilities are to be cleaned-up, repaired and restored to the pre-construction condition by the applicant. To ensure the restoration of the ground surface as a result of linear construction activities, staff has proposed Condition of Certification **VIS-3**. With the implementation of **VIS-3**, the visibility of the project's linear construction activities would generate a less than significant visual effect.

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

Please refer to **Appendix VR-1** for a complete description of staff's Visual Resources evaluation process.

DIRECT/INDIRECT IMPACTS AND MITIGATION

The following discussion of project impacts is organized around the four questions found in the CEQA Guidelines Appendix G Environmental Checklist pertaining to

Aesthetics. These questions relate to scenic vistas and resources, visual character or quality, and light and glare.

Scenic Vistas

CEQA Checklist Question: "*Would the project have a substantial adverse effect on a scenic vista?*"

A scenic vista for the purpose of this analysis is defined as a distant view through and along a corridor or opening that exhibits a high degree of pictorial quality. The project site is not located within an area that includes an identified federal, state or county scenic vista. Staff did not observe any scenic vistas in the project area, nor are any identified in the Riverside General Plan or Menifee Valley Area Plan. Thus, the proposed project would not cause a significant visual impact to a scenic vista.

Scenic Resources

CEQA Checklist Question: *"Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway corridor?"*

A scenic resource for the purpose of this analysis includes a unique water feature (waterfall, transitional water, part of a stream or river, estuary); a unique physical geological terrain feature (rock masses, outcroppings, layers or spires); a tree having a unique visual/historical importance to a community (a tree linked to a famous event or person, an ancient old growth tree); historical building; or a designated federal, state, or local scenic highway corridor.

There are no officially designated State Scenic Highways in the general project area. Although, SR-74 from Grand Avenue in Perris to the western boundary of San Bernardino County is eligible for inclusion into the state scenic highway system, the Riverside County General Plan and the Menifee Valley Area Plan do not identify any scenic resources such as trees, rock outcroppings, and historic buildings in the project area. Therefore, staff concludes that the project would not cause a significant impact on the county's scenic resources.

Three local road segments have been determined to be Eligible County Highways: I-215 from McCall Boulevard to the Sun City/Menifee Plan southern boundary, the segment of McCall Boulevard from I-215 to Menifee Road, and the segment of Menifee Road from McCall Road to SR-74 (County of Riverside, Sun City/Menifee Valley Area Plan, 2003). According to the Menifee Valley Area Plan, scenic highways provide motorists with views of distinctive natural characteristics that are not typical of other areas in the county. The intent is to manage development along scenic highways and corridors so that it will not detract from the area's natural characteristics.

Although motorists on these road segments would have views of the SVEP, the Sun City/Menifee Plan does not identify any designated scenic vistas in the project area that could be impacted by the project.

Visual Character or Quality

CEQA Checklist Question: *"Would the project substantially degrade the existing visual character or quality of the site and its surroundings?*"

The project aspects that were evaluated under this criterion include project construction, the power plant and transmission structures, various pipelines, and visible water vapor plumes.

Project Construction

Construction of the power plant is expected to take approximately 12 months (VSE, 2005b, pg. 8.13-17). Project construction activities at the site would be noticeable to motorists on nearby roadways and a substantial number of new residences. On the project site during the construction period, views of tall cranes and other heavy equipment, building materials, piles of debris, and parked cars are expected. Construction screening is typically accomplished by attaching a fabric or adding wooden slats to the perimeter fence. This screening would provide some visual benefit to residential viewers and motorists near the proposed SVEP site. Staff is proposing Condition of Certification **VIS-1** to require visual screening during construction.

Transmission Line

The electric transmission line distance from the SVEP switchyard to the connection at the Valley Substation is approximately 600 feet. The proposed transmission line would require up to four new 90-foot tall steel poles. The proposed electric transmission line and the two steel poles would not generate a significant visual impact because they would be added to a view that has several existing towers near the project site, and within the Valley Substation. Staff is proposing Condition of Certification **VIS-4** which would require surface treatment of project structures with colors and finishes that blend in with the landscape and reduce the potential for glare.

Power Plant Structures

Staff uses Key Observation Points[1], or KOPs, as representative locations from which to conduct detailed analyses of the proposed project and to obtain existing condition photographs and prepare visual simulations. KOPs are selected to be representative of the most critical locations from which the project would be seen. However, KOPs are not the only locations that staff considered in each view area.

Because the proposed project would be visible from several areas near the project site, three KOPs were chosen by the applicant, with input from staff, for analysis of the proposed SVEP. **VISUAL RESOURCES - Figure 2 (photo locations)** shows the location and view direction of the KOPs selected to represent the most sensitive viewing areas impacted by the proposed project. All visual resources figures are presented at the end of this analysis. **VISUAL RESOURCES Appendix VR-1** provides an in-depth discussion of staff's visual resources evaluation methodology.

[1] The use of KOPs or similar view locations is common in visual resource analysis. The U.S. Bureau of Land Management (USDI BLM 1986a, 1986b, 1984) and the U.S. Forest Service (USDA Forest Service 1995) use such an approach.

Project Operations

KOP 1 – Corridor Along McCall Boulevard

VISUAL RESOURCES Figure 3A presents a view just north of the intersection of McCall and Junipero Roads looking towards the project site about 0.75 of a mile to the north. The view is dominated in the foreground and middleground by a flat agricultural area. A parking lot for the Boulder Creek Elementary School is visible in the left mid-ground view. The proposed project site is to the left of the cluster of trees in the middle-right of the photograph in front of the existing SCE Valley Substation. The existing view, as shown in Figure 3A, contains large industrial buildings and tall vertical steel structures associated with the Valley Substation. Hills, mountain ranges and open sky provide the background.

Visual Sensitivity

From KOP 1, visibility of the proposed project would be from an elevated perspective that is unobstructed at a middleground viewing distance. There is a residential development a couple of hundred yards west of KOP 1. Those residents along the north edge of this development would have a view of the project site.

Motorists utilizing Junipero Road for access to the Boulder Creek Elementary School, as well as the students, faculty, and administrative staff, would have an unobstructed view of the SVEP. In addition, new residential and commercial development is planned for the mid-ground area shown in Figure 3A. As the planned residential areas are developed, they would likely provide partial screening of the power plant from KOP 1. These new residential viewers would also have views of the proposed project.

Viewers (21-50 residences) on the northern boundary of the residential area just west of KOP 1 and residents on the eastern boundary of the proposed development in the middle ground view would also have views of the SVEP. Visual quality is moderate reflecting the mix of rural agricultural and industrial features in the foreground and middleground, and a panoramic background of hills, mountains and sky. Viewer concern is moderately high for these viewers. Viewer exposure is considered to be moderate based on the moderate number of viewers, moderate visibility, and moderately high duration of view. Overall visual sensitivity for residents is moderate.

Viewers in vehicles and those attending the school would have a moderately low concern since their view is short in duration. Viewer exposure is considered to be moderately low based on the moderately low visibility, moderately low number of viewers (100-200), and low duration of view. Overall visual sensitivity for motorists and students is moderately low based on moderate visual quality, moderately low viewer concern, and moderately low viewer exposure.

Visual Change

VISUAL RESOURCES Figure 3B provides a simulation of the proposed power plant from KOP 1. The most visible aspects of the power plant structures at KOP 1 would be the five combustion turbine generators and exhaust stacks. The proposed project structures would increase the industrial character of the local area.

The project would introduce vertical structural lines and linear forms, specifically five turbine combustion generators and stacks. The introduced forms and lines would be inconsistent with forms and lines already established by landforms in the vicinity (flat agricultural lands and rounded hills), although there are transmission towers and a large electrical substation in the current landscape. As noted earlier, the applicant has proposed that structures be painted with a neutral tan color. Staff believes that this color would provide a noticeable contrast with landscape features such as the hills, fields and sky. The contrast would be greater with the green to brown colors of the hills and mountain ranges, and the varied coloration of the existing residential/industrial area. Overall, visual contrast with the existing setting would be moderate. Staff has proposed Condition of Certification **VIS-4** which requires that all project features be colored to blend in with the landscape. This issue will be addressed in the PSA workshop.
The visual landscape from KOP 1 is comprised of agricultural lands, hills and mountains and residential, commercial, and industrial features. Proposed power plant structures would be spatially prominent in the KOP view. The structures would appear subordinate to the mosaic of agricultural fields and the background landscape and comparable in size to existing commercial and industrial features. Project dominance is rated moderately low. View disruption and blockage would be moderately low because the proposed power plant would only block a very small portion of the hills in the background (high visual quality), and would primarily only block views of commercial/industrial buildings (low visual quality). Overall visual change is moderate given the moderate contrast, moderately low dominance, and moderately low view disruption and contrast.

From KOP 1, the overall visual change caused by the proposed project would be moderate due to the moderate visual contrast, moderate to low dominance, and moderately low degree of view disruption and blockage of the higher quality landscape feature of hills and mountain ranges.

Considering the moderately low to moderate visual sensitivity for viewers, and the moderate visual change that would be perceived from KOP 1, the proposed project would not cause a significant adverse visual impact.

KOP 2 – Developing Residential Area East of Menifee Road

Visual Resources Figure 4A presents a view looking northwest toward the project site from a residential development being constructed along the east side of Menifee Road, just north of the intersection with Rouse Road. The proposed project site is about 1,000 feet from the KOP. Menifee Road just beyond the transmission towers and lines, a privately owned parcel covered with disabled vehicles and various equipment, and an agricultural field are in the foreground view. A cluster of trees, commercial buildings, transmission line, and substation are visible in the middleground. Though not visible in the figure, there are some low-elevation hills in the middleground, and the San Bernardino Mountains and sky provide the background view.

Visual Sensitivity

From KOP 2, visual quality is moderately low reflecting the mix of agricultural lands, telephone poles and lines, disabled vehicles and equipment, electrical substation, and commercial and industrial buildings. Residents in vehicles (several hundred) exiting the

development onto Menifee Road would see the SVEP frequently but only for a few seconds (5-10). Viewer concern and number of viewers is moderately low. Viewer exposure is moderately low due to the moderate visibility, moderately low number of viewers, and the low duration of view. Overall sensitivity is moderately low due to the moderately low visual quality, moderately low viewer concern, and the moderately low viewer exposure.

Residents in ten two-story homes along the western boundary of the Menifee development north of KOP 2 would see the SVEP frequently. From this vantage point, the visual quality is moderately high with the scenic hills in the background. These viewers would have a much better view of the power plant because it would be closer and more prominent. Project visibility would be moderately high. These residents would also be closer to and have a better view of the SCE Valley Substation and the IEEC. There would also be views of the existing disabled vehicles and equipment, agricultural fields, commercial and industrial buildings, and transmission towers and lines. Viewer concern is moderately high for these residents. Viewer exposure is moderately high due to moderately high visibility, moderate number of viewers, and high duration of view. Overall visual sensitivity is moderately high based on moderately high visual quality, and moderately high viewer concern and exposure.

Motorists traveling through the area on Menifee Road (6,950 average daily traffic counts) would see the SVEP for a few seconds (less than ten) if they looked west when passing near the project. Visual quality is moderately low considering the existing disabled vehicles and equipment, agricultural fields, commercial and industrial buildings, and transmission towers and lines in this view. Viewer concern is moderately low for motorists. Viewer exposure is moderately low due to moderately low visibility, moderate to high number of viewers, and low duration of view. Overall visual sensitivity is moderately low based on moderate visual quality and moderately low viewer concern and exposure.

Visual Change

Visual Resources Figure 4B is a simulation depicting the power plant in the view from KOP 2. This view would be seen by viewers (several hundred) in vehicles leaving the northern portion of the Menifee Ranch residential development. The introduced forms and lines would be inconsistent with the agricultural lands in the area, but would be somewhat similar to the existing commercial and industrial buildings, electrical substation, and transmission towers and lines. The introduction of neutral tan colored project structures into the view would present a moderately high color contrast with existing structures, agricultural lands, trees, and sky. Project structures would be subordinate to the transmission towers and lines and commercial buildings. View disruption and blockage would be moderately low because most of the view that would be blocked is low horizon sky. Overall visual change is moderately low given the moderately high contrast, subordinate dominance, and low viewer disruption and blockage.

A second group of viewers would be residents in ten two-story houses north of KOP 2 along Menifee Road who would have an unobstructed view of the SVEP about 1,000 feet to the west. The introduced forms and lines would be inconsistent with the agricultural lands in the area, but would be somewhat similar to the existing commercial

and industrial buildings, electrical substation, and transmission towers and lines. The introduction of neutral tan colored project structures into the view would present a moderately high color contrast with existing structures, agricultural lands, trees, and sky. Project structures would be co-dominant to the transmission towers and lines. View disruption and blockage would be moderately low because most of the view that would be blocked is low horizon sky and commercial buildings. These residents would also have a better view of the SCE Substation (750 feet west) and the Inland Empire Energy Center (0.5 miles northwest). Overall visual change is moderate given the moderately high contrast, co-dominance, and moderately low disruption and blockage.

The last group of viewers would be motorists traveling through the area on Menifee Road. These viewers would be looking at the road or roadside features such as trees or agricultural fields. The SVEP would be about 900 feet west of Menifee Road at a 90 degree angle from a north or south bound motorist. Proposed power plant structures would be prominent for a few seconds for motorists on Menifee Road (6,950 average daily traffic counts) if they looked to the west. The introduced forms and lines would be inconsistent with the agricultural lands in the area, but would be somewhat similar to the existing commercial and industrial buildings, electrical substation, and transmission towers and lines. The introduction of neutral tan colored project structures into the view would present a moderately high color contrast with existing structures, agricultural lands, trees, and sky. The SVEP would appear co-dominate with the existing commercial and industrial structures in their view. However, the scale of the proposed project is significantly larger than the existing structures. View disruption and blockage would be moderately low because the proposed power plant would only block a very small portion of the hills in the background (high visual quality), and would primarily only block views of commercial/industrial buildings (low visual quality). For these motorists, the overall visual change caused by the SVEP would be moderate given the moderately high visual contrast, co-dominance of project structures, and moderately low disruption and blockage.

Considering the moderately low visual sensitivity for motorists (through traffic and those exiting the Menifee Development), and the moderate visual change that would be perceived at KOP 2, the project would cause a less than significant adverse visual impact. However, for the residences north of KOP 2, the project would cause a significant adverse visual impact. This is based on moderately high visual sensitivity and moderate visual change.

Staff is proposing Condition of Certification **VIS-4** to require appropriate structure surface treatment and painting. The applicant has proposed landscaping around the perimeter of the SVEP that would screen most of the plant structures, including portions of the stacks, to greatly reduce the visibility of the plant (VSE 2005b, pg. 8.13-20). This would involve planting fast growing trees and shrubs placed intermittently to produce a vegetative screen all around the SVEP. Staff has reviewed the plan and concludes that if it is implemented appropriately, the identified visual impacts would be reduced to a less than significant level. The plan will be discussed at the PSA workshop and addressed more fully in the FSA. Staff is proposing Condition of Certification **VIS-5** to ensure implementation of landscaping measures, and berms if appropriate. With the implementation of these mitigation measures, the SVEP would not have a significant adverse visual impact.

In addition, staff has reviewed the landscaping plan for the Menifee Ranch residential development. This includes trees at 20 foot intervals that are 15 feet high, with 8 foot wide crowns when planted. It is estimated that the trees would be 25 feet high with 15-20 feet wide crowns after five years growth (Ferrara 2007). The combined landscaping plans would provide substantial screening within five years, and would further reduce the residual adverse visual impact.

KOP 3 – Corridor along SR-74

Visual Resources Figure 5A represents the view from the Hamshaw Farms Market parking lot near the post office along the north side of SR-74. The view is looking south toward the power plant site, a little more than one-half mile away. The highway, telephone and transmission lines, a barren field and commercial buildings dominate the foreground. A cluster of trees, transmission towers and lines, and a hill are in the middleground, and the open sky provides the background

Visual Sensitivity

Pedestrians and the people visiting the market or post office could see the tops of the steam generator stacks though they would have to look closely since most of the project would be screened by existing buildings and trees. Motorists on SR-74 would have to look left or right at a 90 degree angle from their direction of travel to catch a glimpse of the stacks. The view would only be possible for a second or two. From KOP 3, visual quality is considered moderately low. Viewer concern is moderately low because most viewers in the parking lot or driving along SR-74 expect a visual setting with a mix of commercial buildings. Project visibility is low because of almost complete screening by buildings and trees. Although the potential number of viewers is high (25,000 average daily traffic counts), overall viewer exposure is rated low because of low duration of view and very low visibility. Overall visual sensitivity is low due to moderately low visual quality, moderately low viewer concern, and low viewer exposure.

Visual Change

Visual Resources Figure 5B is a simulation of the proposed plant from this observation point. Proposed project features would be barely visible from this KOP. Only the top of a couple of stacks would be visible from this view. The form and lines of these structures are consistent with the forms and lines of existing commercial buildings and transmission tower and lines. The introduction of project structures into the view would present a minor color contrast with trees, transmission towers and lines, and sky. Project dominance is subordinate to existing commercial buildings, trees and empty field. View disruption and blockage would be low. Overall visual change would be low due to the minor color contrast, low dominance, and low view disruption and blockage.

From KOP 3, the overall visual change caused by the proposed SVEP would be low due to the low visual contrast, low dominance and low degree of viewer disruption and blockage. When considered within the context of the low visual sensitivity of the existing landscape and viewing characteristics, the project would not cause a significant adverse visual impact from KOP 3.

Light or Glare

CEQA Checklist Question: *"Would the project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?*"

Daytime light or glare would be minimized by ensuring that project structures are treated with colors and finishes that do not create excessive glare as required by Condition of Certification **VIS-4**. These measures would ensure that the project would not be a source of substantial glare that would adversely affect daytime views. **VIS-4** would also require that transmission line conductors are non-specular and non-reflective, and the insulators are non-reflective and non-refractive.

General sources of night lighting in the project area include commercial buildings and the SCE Valley Substation. Nighttime lighting during construction would, to the extent feasible and consistent with workers safety procedures, be directed toward the center of the construction site and shielded to prevent offsite leakage (VSE 2005a, pg. 8.13-21). The applicant acknowledges that during construction of the SVEP there may be times when the project site may appear as a bright light to residential areas currently being developed. Staff is proposing Condition of Certification **VIS-2** that would minimize potential night lighting impacts that could occur during construction.

During operation, the proposed project's night lighting would be used for safety and security. Areas that are not continuously occupied would have light switches and motion censors to turn off lights when not needed. Staff's proposed Condition of Certification **VIS-6** would require the placement of lights for direct illumination of appropriate areas and the use of shielding would ensure spill light from light sources does not occur offsite. In addition, the use of non-glare fixtures would minimize glare.

Mt Palomar Observatory is located about thirty miles southeast of the project site and its operations could potentially be impacted by continuous nighttime lighting and lighting directed upwards to the sky. As noted in **VISUAL RESOURCES Table 2**, the Sun City/Menifee Valley Area Plan has a provision to limit light leakage and spillage of the project's lighting so as not to interfere with the observations of the Palomar Observatory. Measures to reduce offsite leakage would include using the minimal lighting required for operations and safety, and using lighting that is shielded/hooded and directed downward and toward the area to be illuminated.

The added lighting generated by the proposed project is not expected to significantly change ambient lighting conditions as viewed from KOPs 1 and 3. Lighting would be more visible from KOP 2. Staff proposes Condition of Certification **VIS-6** to require review and approval of a lighting plan for the project by Energy Commission staff to ensure that the SVEP would not generate a substantial new source of light that could cause a significant adverse effect on nighttime views.

Impact of Cooling Tower and Combustion Exhaust Stack Plumes

The proposed SVEP is a 500 MW gas-fired peaking power plant that would include five 90-foot tall combustion exhaust stacks and a five-cell mechanical-draft cooling tower. Under certain weather conditions, visible water vapor plumes would emanate from the cooling towers. Because water vapor plumes are generally associated with heavy

industrial land uses, they tend to be regarded negatively by sensitive observers and as such could have an adverse effect on visual resources in the vicinity of the project. The severity of the impacts created by the project's visible plumes depends on several factors, including the frequency duration, and physical size of the plumes, the sensitivity of the viewers who will see the plumes, the distance between the plumes and the viewers, the visual quality of the existing viewshed, and whether any scenic landscape features would be blocked by the plumes.

MODELING ANALYSIS

Staff used the Combustion Stack Visible Plume model and a five-year (1997-2001) March Air Force Base meteorological data set, obtained from the National Climatic Data Center, to calculate the frequencies and sizes of the SVEP cooling tower and exhaust stack plumes. Please refer to **Appendix VR-2** at the end of this visual resources section for a more complete description of staff's visible plume modeling analysis. Staff has established a 20 percent threshold for plume frequency – plumes predicted to occur less than 20 percent of the time are considered to be less than significant. When plume frequencies are 20 percent or greater, staff conducts a visual impact analysis of the plumes.

Staff considers the 20th percentile plume to be the reasonable worst case plume dimensions on which to base its visual impact analysis. The 20th percentile plume is the smallest of the plumes that are predicted to occur zero to 20 percent of the time. Eighty (80) percent of the time the dimensions of the clear hour plumes would be smaller than the 20th percentile plume dimensions. A one percentile clear hour plume would be extremely large (physical size) and very noticeable to a wide area, but would occur very infrequently.

Staff modeled two operational profiles for this project: the applicant's proposed 40 percent capacity during summer months, and staff's worst case 65 percent capacity factor split 60/40 percent summer and winter, respectively. Frequency information for both operational profiles is presented, although staff's visual analysis is based only on the future case modeling. Staff believes the 65 percent capacity factor future case is a bounding worst case expectation for annual operations for the 30 to 40 year plant life as regional electricity demand grows and older plants retire.

Summer Operating Profile

The applicant has stated that the facility would be a peaking plant operating during the summer, and would operate at no more than a 40 percent annual capacity factor. This operating profile does not result in visible plume frequencies greater than staff's 20 percent threshold (see **Table 3** in **Appendix VR-2**). However, there are no limitations to operation proposed by the applicant, so operations could be significantly greater than their estimate depending on actual market conditions.

Year-Round, Future Operating Profile

Staff has determined that a reasonable future operating profile (10-15 years from now) would be a 65 percent capacity factor with 60 percent of annual operation in summer (May to October), and 40 percent in winter (November to April). As reflected in Appendix VR-2, this profile results in a plume frequency of 49 percent of seasonal

daylight clear hours (November through April) and a plume frequency of 28 percent of summer seasonal daylight clear hours (May through October). The 20th percentile daylight clear hour winter plumes are predicted to be larger than the 20th percentile daylight clear hour summer plumes. November to April, 20th percentile clear hour plume dimensions are predicted to be 78 feet long, 145 feet high, and 87 feet wide (see **Tables 5** and **6** in **Appendix VR-2**). **Visual Resources Figure 4B** is a simulation of the SVEP with the winter plume.

The predicted plumes would not dominate the wide, panoramic views available for residences and motorists represented by KOP-2 (see **VISUAL RESOURCES Figure 4B – Visual Plume Simulation)**. The white plumes would contrast with the blue sky background but would not block features of high visual quality. Therefore, staff has determined the SVEP cooling tower water vapor plumes would have a less than significant impact on visual resources. To ensure that the visual impacts of cooling tower plumes remain less than significant, staff has proposed Condition of Certification **VIS-8** to verify the cooling tower design prior to construction.

For viewers in the residences along Menifee Road north of KOP 2, the 20th percentile plumes would be more noticeable than the ones depicted in **VISUAL RESOURCES Figure 4B**. Those viewers would be closer to the SVEP and the plumes would be highlighted by the sky in the background. However, only a small portion of the sky would be blocked and staff contends that this would not be a significant adverse impact to these viewers.

Heat Recovery Steam Generator Plumes

The temperature of the turbine exhaust exceeds 700°F under normal operating conditions. Based on staff's previous siting case experience of modeling simple cycle gas turbines with exhaust temperatures of this magnitude, when the gas turbine exhausts are mixed with the ambient air, the resulting plume will remain well below the water vapor saturation curve. Therefore, there is no potential for water vapor condensation and no visible steam plumes would form during any meteorological conditions at the project site. Therefore, staff did not analyze the turbine exhaust stack further for potential visible plumes.

CUMULATIVE IMPACTS AND MITIGATION

As defined in Section 15355 of the CEQA Guidelines (California Code of Regulation, Title 14), a cumulative impact is created as a result of the combination of the project under consideration together with other existing or reasonably foreseeable projects causing related impacts. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time. In other words, though any one project in a given area may not create a significant impact to visual resources, the combination of the new project with all existing or planned projects in the area may create significant impacts. The significance of the cumulative impact would depend on the degree to which (1) the viewshed is altered; (2) visual access to scenic resources is impaired; or (3) visual quality is diminished.

As discussed earlier in the Setting section, the area around the SVEP is in the midst of a significant period of development as demonstrated by the Menifee Residential

Development project. Additional residential and commercial projects are planned for the area near the intersections of Junipero and McCall Roads, Menifee and McCall Roads, and light industrial and commercial projects are planned between McLaughlin and Ethanac Roads (Riverside County 2007b). The SVEP would be near other industrial structures, is an appropriate and consistent use given the local zoning designation, and there are plans to have commercial or light industrial development between the project site and the Menifee Road residential area. The viewshed would be altered significantly within the next five years and the visual quality of the area would be somewhat diminished. Staff has not identified any scenic resources as defined by CEQA in the local area and none are identified in the Riverside County General Plan or the Menifee Valley Area Plan. Some viewers at KOP 1 and residences north of KOP 2 have scenic views of foothills and buttes. The project would be a part of the cumulative visual change that would be significant without mitigation. However, with staff's proposed conditions of certification (i.e. landscaping and treatment of structures), the SVEP's contribution to impacts to visual resources would not be cumulatively considerable.

In addition, the Inland Empire Energy Center (IEEC), a large 670 MW power plant, is being constructed about one half-mile northwest of the SVEP. The IEEC plumes generated by the cooling towers are not expected to occur more than 10 percent of the time and would not result in significant visual impacts (CEC Order NO. 03-1217-05, Pg. 288). Given this determination and the fact that the IEEC is a half-mile from the SVEP, the IEEC plumes would appear small in size and lower on the horizon to viewers at KOP-2, for example, compared to the SVEP plumes. Staff does not believe that the combination of the IEEC and SVEP plumes would have a significant adverse cumulative impact.

Staff has considered the minority populations (as identified in **Socioeconomics Figure 1**) and low income populations in its cumulative impact analysis. There are no significant adverse cumulative visual impacts, and therefore, no environmental justice issues.

COMPLIANCE WITH LORS

The proposed power plant and associated linear facilities would be constructed within the jurisdiction of Riverside County. Therefore, the SVEP would be subject to LORS pertaining to the protection and maintenance of visual resources which are found in Riverside County's General Plan. Specifically, the County's General Plan contains three applicable elements for review: the Land Use Element, the Circulation Element, and the Multipurpose Open Space Element. The Sun City/Menifee Valley Community Plan has one applicable policy related to nighttime lighting.

VISUAL RESOURCES Table 2 provides a consistency review discussion of the project with applicable local LORS.

VISUAL RESOURCES Table 2
Proposed Project's Consistency with
Applicable Local LORS Specific To Visual Resources

Riverside County General Plan – Land Use (LU) Element – Scenic Corridors	
LU 13.1	Preserve and protect outstanding scenic vistas and visual features for the enjoyment of the traveling public. **Consistency - Consistent.** There are no scenic vistas near the project site.
LU 13.3	Ensure that the design and appearance of new landscaping, structures, equipment, signs, or grading within Designated and Eligible State and County Scenic Highway corridors are compatible with the surrounding scenic setting or environment. **Consistency - Consistent**..Staff has reviewed the SVEP landscaping plan to determine if it is compatible with the Eligible Scenic Highways closest to the project, and/or if it would provide adequate screening for nearby residential areas. The landscaping plan is appropriate (**VIS-5)**. This topic will be addressed more fully in the Final Staff Assessment. Staff has proposed conditions of certification (**VIS-1, 4, and 7**) to ensure that structures, equipment, and signs are compatible with the surrounding environment.
LU-13.6	Prohibit offsite outdoor advertising displays that are visible from Designated and Eligible State and County Scenic Highways. **Consistency - Consistent**. The SVEP would not have any offsite outdoor advertising displays that are visible from nearby Eligible Scenic Highways
LU 13.7	Require that the size, height, and type of on-premise signs visible from the Designated and Eligible State and County Scenic Highways be the minimum necessary. The design, materials, color, and location of the signs shall blend with the environment, utilizing natural materials where possible. **Consistency** - **Consistent**. Signage on the site would be limited and subdued in design, and would not be visible from the nearby Eligible Scenic Highways (see Condition of Certification **VIS-7**).
Riverside County General Plan – Circulation (C) Element	
C 19.1	Preserve scenic routes that have exceptional or unique visual features in accordance with Caltrans Scenic Highways Plan. **Consistency** - **Consistent.** The SVEP would not adversely affect scenic routes that have exceptional or unique visual features.
Multipurpose Open Space (OS) Element – Scenic Resources and Corridors	
OS 21.1	Identify and conserve the skylines, view corridors, and outstanding vistas within Riverside County. **Consistency - Consistent.** The project would add structures with the skyline as background but would be at a lower elevation than existing telephone towers and lines from most viewpoints. SCEP would not adversely affect skyline views, view corridors, and outstanding vistas.

OS 22.1	Design developments within designated scenic highway corridors to balance the objectives of maintaining scenic resources with accommodating compatible land uses. **Consistency - Consistent**. The SVEP would not be visible from any officially designated scenic corridor but would be visible from portions of McCall and Menifee Roads, both of which are eligible scenic roads. Conditions of Certification **VIS-3, 4, 5, 6, and 7** would ensure that the project design would not degrade visual resources in the local area.
Sun City/Menifee Valley Community Plan.	
Mt. Palomar Nighttime Lighting Policy SCMVAP 12.1	Adhere to the Riverside County lighting requirements for standards that are intended to limit light leakage and spillage that may interfere with the operations of the Palomar Observatory. **Consistency - Consistent.** The lighting plan described by the applicant and staff's proposed mitigation would ensure that light leakage and spillage are minimized.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

Staff has reviewed Riverside County's Advisory Conditional Use Permit which has a number of conditions regarding landscaping and lighting (Riverside County 2007a). Staff's proposed conditions of certification incorporate the County's conditions.

If comments are received on the PSA regarding visual resources they will be discussed in the Final Staff Assessment.

CONCLUSIONS

The visual analysis focused on two main issues; (1) does the construction and operation of the project cause visual impacts; and (2) would the project be in compliance with applicable local LORS.

- The project site is within the boundary of the Riverside County General Plan and the Sun City/Menifee Valley Community Plan. In general, the visual resources components of these plans are meant to protect scenic vistas and visual features for the enjoyment of the public. There are no scenic vistas or outstanding visual features near the SVEP site.
- The project site is within an area that has agricultural, commercial, and industrial features. The development under way in this area would significantly increase the residential and commercial character of the landscape.
- There are no State or County designated scenic highway corridors in the project area, but portions of McCall, Menifee Roads, I-215, and SR-74 that would have views of the SVEP are eligible for scenic designation.
- The proposed SVEP would be consistent with applicable visual policies of the Riverside County General Plan, Land Use, Circulation and Multipurpose Open

Space Elements, as well as Mt. Palomar Nighttime Lighting Policy of the Sun City/Menifee Community Plan.

- The proposed project would not cause significant visual impacts on a minority or low income population; there would be no environmental justice issues pertaining to visual resources.
- With mitigation, construction and operation of the SVEP would not cause any significant visual impacts to adjacent land uses, nor would the operation of the SVEP contribute considerably to cumulative visual impacts.

The construction and operation of the SVEP as proposed, with the effective implementation of the staff recommended conditions of certification below, would ensure that adverse visual impacts from the project are less than significant and ensure that the project complies with all applicable LORS regarding visual resources.

PROPOSED CONDITIONS OF CERTIFICATION

CONSTRUCTION SCREENING

VIS-1 The project owner shall provide construction screening using a fabric, wooden slats, or other material along the perimeter fence line. A fencing plan shall be submitted to the Riverside County Transportation and Land management Agency showing all fence locations and typical views of all types of fences proposed. This plan shall require anti-graffiti coatings on fences where applicable.

Verification: At least 60 days prior to site mobilization, the project owner shall submit a construction screening plan to the Riverside County Transportation and Land Management Agency for review and comment and to the CPM for review and approval. If the CPM notifies the project owner that any revisions of the screening plan are needed, the project owner shall submit to the CPM a plan with the specified revisions within 30 days of receiving that notification.

CONSTRUCTION LIGHTING

VIS-2 The project owner shall ensure that lighting for construction of the power plant is used in a manner that minimizes potential night lighting impacts, as follows:

A. All lighting shall be of minimum necessary brightness consistent with worker safety and security;

B. All fixed position lighting shall be shielded/hooded, and directed downward and toward the area to be illuminated to prevent direct illumination of the night sky and direct light trespass (direct light extending outside the boundaries of the power plant site or the site of construction of ancillary facilities, including any security related boundaries);

C. Low pressure sodium vapor lighting or overhead high pressure sodium vapor lighting with shields or cutoff luminaries shall be utilized;

D. Wherever feasible, safe and not needed for security, lighting shall be kept off when not in use; and

E. Complaints concerning adverse lighting impacts will be promptly addressed and mitigated.

Verification: Within seven days after the first use of construction lighting, the project owner shall notify Riverside County Transportation and Land Management Agency and the CPM that the lighting is ready for inspection. If the CPM requires modifications to the lighting, within 15 days of receiving that notification the project owner shall implement the necessary modifications and notify the CPM that the modifications have been completed.

Within 48 hours of receiving a lighting complaint, the project owner shall provide the CPM with a complaint resolution form report as specified in the General Conditions section including a proposal to resolve the complaint, and a schedule for implementation. The project owner shall notify the CPM within 48 hours after completing implementation of the proposal. A copy of the complaint resolution form report shall be included in the subsequent Monthly Compliance Report following complaint resolution.

SITE SURFACE RESTORATION

VIS-3 The project owner shall remove all evidence of the laydown area and linear facility construction activities, and shall restore the ground surface to the original condition or better condition, including the replacement of any vegetation or paving removed during construction where project development does not preclude this. The project owner shall submit to the CPM for review and approval a surface restoration plan, the proper implementation of which will satisfy these requirements.

Verification: At least 60 days prior to the start of commercial operation, the project owner shall submit the surface restoration plan to the CPM for review and approval.

If the CPM notifies the project owner that any revisions of the surface restoration plan are needed, the project owner shall submit to the CPM a plan with the specified revisions within 30 days of receiving that notification.

The project owner shall complete surface restoration within 60 days after the start of commercial operation. The project owner shall notify the CPM within seven days after completion of surface restoration that the restoration is ready for inspection.

SURFACE TREATMENT OF PROJECT STRUCTURES AND BUILDINGS

VIS-4 The project owner shall treat the surfaces of all project structures and buildings visible to the public such that a) their color(s) minimize(s) visual intrusion and contrast by blending with the landscape; b) their colors and finishes do not create excessive glare; and c) their colors and finishes are consistent with local policies and ordinances. The transmission line conductors shall be non-specular and non-reflective, and the insulators shall be non-reflective and non-refractive.

The project owner shall submit for CPM review and approval, a specific surface treatment plan that will satisfy these requirements. The treatment plan shall include:

A. A description of the overall rationale for the proposed surface treatment, including the selection of the proposed color(s) and finishes;

B. A list of each major project structure, building, tank, pipe, and wall; the transmission line towers and/or poles; and fencing, specifying the color(s) and finish proposed for each. Colors must be identified by vendor, name, and number; or according to a universal designation system;

C. One set of color brochures or color chips showing each proposed color and finish;

D. One set of 11" x 17" color photo simulations at life size scale of the treatment proposed for use on project structures, including structures treated during manufacture, from Key Observation Points 1 and 2;

E. A specific schedule for completion of the treatment; and

F. A procedure to ensure proper treatment maintenance for the life of the project.

The project owner shall not specify to the vendors the treatment of any buildings or structures treated during manufacture, or perform the final treatment on any buildings or structures treated in the field, until the project owner receives comment from the Riverside County Transportation and Land Management Agency and notification of approval of the treatment plan by the CPM. Subsequent modifications to the treatment plan are prohibited without CPM approval.

Verification: At least 90 days prior to specifying to the vendor the color(s) and finish(es) of the first structures or buildings that are surface treated during manufacture, the project owner shall submit the proposed treatment plan to the CPM for review and approval and simultaneously to the Riverside County Planning Department for review and comment.

If the CPM determines that the plan requires revision, the project owner shall provide to the CPM a plan with the specified revision(s) for review and approval by the CPM before any treatment is applied. Any modifications to the treatment plan must be submitted to the CPM for review and approval.

Within ninety (90) days after the start of commercial operation, the project owner shall notify the CPM that surface treatment of all listed structures and buildings has been completed and they are ready for inspection, and shall submit one set of electronic color photographs from the same key observation points identified in (d) above.

The project owner shall provide a status report regarding surface treatment maintenance in the Annual Compliance Report. The report shall specify a): the condition of the surfaces of all structures and buildings at the end of the reporting year; b)

maintenance activities that occurred during the reporting year; and c) the schedule of maintenance activities for the next year.

LANDSCAPE SCREENING

VIS-5 The project owner shall provide landscaping that reduces the visibility of the power plant structures and complies with local policies and ordinances as noted in the Riverside County Advisory Conditional Land Use Permit. Trees and other vegetation consisting of informal groupings of fast-growing evergreens shall be strategically placed and of sufficient density and height to effectively screen the power plant structures within the shortest feasible time.

The project owner shall submit to the CPM for review and approval and simultaneously to the Riverside County Transportation and Land Management Agency for review and comment a landscaping plan whose proper implementation will satisfy these requirements. The plan shall include:

a) A detailed landscape, grading, and irrigation plan, at a reasonable scale. The plan shall demonstrate how the requirements stated above shall be met. The plan shall provide a detailed installation schedule demonstrating installation of as much of the landscaping as early in the construction process as is feasible in coordination with project construction.

b) A list (prepared by a qualified professional arborist familiar with local growing conditions) of proposed species, specifying installation sizes, growth rates, expected time to maturity, expected size at five years and at maturity, spacing, number, availability, and a discussion of the suitability of the plants for the site conditions and mitigation objectives, with the objective of providing the widest possible range of species from which to choose;

c) Landscaping screening located along the adjacent rail alignment and Juniper Road shall be designed to be opaque up to a minimum of six feet at maturity, except that planting within ten feet of an entry or exit driveway shall not be permitted to grow higher than 30 inches, and no trees shall be planted within ten feet of driveways, alleys, or street intersections;

d) Maintenance procedures, including any needed irrigation and a plan for routine annual or semi-annual debris removal for the life of the project;

e) A procedure for monitoring for and replacement of unsuccessful plantings for the life of the project; and

f) One set of 11”x17” color photo-simulations of the proposed landscaping at five years and twenty years after planting, as viewed from Key Observation Point 2 location shown on Figure 4A at the end of this visual resources analysis.

The plan shall not be implemented until the project owner receives final approval from the CPM.

Verification: The landscaping plan shall be submitted to the CPM for review and approval and simultaneously to the Riverside County Transportation and Land Management Agency for review and comment at least 90 days prior to installation.

If the CPM determines that the plan requires revision, the project owner shall provide to the CPM and simultaneously to the Riverside County Transportation and Land Management Agency a revised plan for review and approval by the CPM.

The planting must occur during the first optimal planting season following site mobilization. The project owner shall simultaneously notify the Riverside County Transportation and Land Management Agency and the CPM within seven days after completing installation of the landscaping, that the landscaping is ready for inspection.

The project owner shall report landscape maintenance activities, including replacement of dead or dying vegetation, for the previous year of operation in each Annual Compliance Report.

PERMANENT EXTERIOR LIGHTING

VIS-6 To the extent feasible, consistent with safety and security considerations, and commercial availability, the project owner shall design and install all permanent exterior lighting such that a) light fixtures do not cause obtrusive spill light beyond the project site; b) lighting does not cause excessive reflected glare; c) direct lighting does not illuminate the nighttime sky; d) illumination of the project and its immediate vicinity is minimized, and e) the plan complies with local policies and ordinances. Lighting shall be consistent with Condition of Certification **VIS-2**.

The project owner shall simultaneously submit to Riverside County Transportation and Land Management Agency for review and comment and to the CPM for review and approval a lighting mitigation plan that includes the following:

A. Location and direction of light fixtures shall take the lighting mitigation requirements into account;

B. Lighting design shall consider setbacks of project features from the site boundary to aid in satisfying the lighting mitigation requirements;

C. Lighting shall incorporate commercially available fixture hoods/shielding, with light directed downward or toward the area to be illuminated;

D. Light fixtures shall not cause obtrusive spill light beyond the project boundary;

E. Low pressure sodium vapor lighting or overhead high pressure sodium vapor lighting with shields or cutoff luminaries shall be utilized;

F. All lighting shall be of minimum necessary brightness consistent with operational safety and security; and

G. Lights in high illumination areas not occupied on a continuous basis (such as maintenance platforms) shall have (in addition to hoods) switches, timer switches, or motion detectors so that the lights operate only when the area is occupied.

Verification: At least 90 days prior to ordering any permanent exterior lighting, the project owner shall contact the CPM to discuss the documentation required in the lighting mitigation plan.

At least 60 days prior to ordering any permanent exterior lighting, the project owner shall to Riverside County Transportation and Land Management Agency for review and comment and to the CPM for review and approval a lighting mitigation plan.

If the CPM determines that the plan requires revision, the project owner shall provide to the CPM a revised plan for review and approval by the CPM. The project owner shall not order any exterior lighting until receiving CPM approval of the lighting mitigation plan.
Prior to commercial operation, the project owner shall notify the CPM that the lighting has been completed and is ready for inspection. If after inspection the CPM notifies the project owner that modifications to the lighting are needed, within 30 days of receiving that notification the project owner shall implement the modifications and notify the CPM that the modifications have been completed and are ready for inspection.

Within 48 hours of receiving a lighting complaint, the project owner shall provide the CPM with a complaint resolution form report as specified in the Compliance General Conditions including a proposal to resolve the complaint, and a schedule for implementation. A copy of the complaint resolution form report shall be submitted to the CPM within 30 days of complaint resolution.

SIGNAGE

VIS-7 The project owner shall install minimal signage visible to the public, which shall a) have unobtrusive colors and finishes that prevent excessive glare; and b) be consistent with the policies and ordinances of Riverside County Transportation and Land Management Agency. The design of any signs required by safety regulations shall conform to the criteria established by those regulations.

Verification: At least 45 days prior to commercial operation, the project owner shall provide a copy of the plans for the sign to the CPM for review and approval and to the Riverside County Planning Department for review and comment.

Within 30 days of CPM approval, the project owner shall provide the CPM with electronic color photographs of the installed signage. Prior to the start of commercial operation, the project owner shall notify the CPM and Riverside County Transportation and Land Management Agency that appropriate signage has been installed and is ready for inspection. If the CPM determines that signage requires changes, the project owner shall complete the changes within 60 days and notify the CPM that the changes have been completed.

PLUMES

VIS-8 The project owner shall ensure that the cooling tower is designed and operated as certified. The cooling tower shall be designed and operated so that that the exhaust air flow rate per heat rejection rate (1) will not be less than 5.6 kilograms per second per megawatt when the ambient conditions are 20

degrees F and 60 percent relative humidity ambient, (2) will not be less than 8.0 kilograms per second per megawatt when the ambient conditions are 59 degrees F and 60 percent relative humidity, and (3) will not be less than 9.2 kilograms per second per megawatt when the ambient conditions are 95 degrees F and 60 percent relative humidity. The project owner shall provide a cooling tower frequency curve from the cooling manufacturer for this project's final cooling tower design.

Verification: At least 90 days prior to ordering the cooling towers, the project owner shall provide to the CPM for review the final design specifications of the cooling tower to confirm that design mass flow rates for the cooling tower cells meet these requirements. The project owner shall not order the cooling tower until notified by the CPM that this design requirement has been satisfied.

The project owner shall provide written documentation in each Annual Compliance Report to demonstrate that the cooling towers have consistently been operated within the above-specified design parameters, except as necessary to prevent damage to the cooling tower. If determined to be necessary to ensure operational compliance, based on legitimate complaints received or other physical evidence of potential non-compliant operation, the project owner shall monitor the cooling tower operating parameters in a manner and for a period as specified by the CPM. For each period that the cooling tower operation monitoring is required, the project owner shall provide to the CPM the cooling tower operating data within 30 days of the end of the monitoring period. The project owner shall include with this operating data an analysis of compliance and shall provide proposed remedial actions if compliance cannot be demonstrated.

The CPM will determine potential non-compliant operation through a comparison of the ambient conditions during the period(s) of complaint and the expected plume occurrence based on the manufacturer's plume fogging frequency curve, which will be provided by the project owner as a requirement of this condition. Additionally, if photographic evidence of extremely large plumes (plume length or height greater than 1,000 feet) is provided for ambient conditions that are close to the fogging/no fogging line of the fogging frequency curve, potential non-compliant operation can be determined by comparing the actual plume dimensions with dispersion modeling analysis predicted worst-case plume dimensions for the ambient conditions occurring during the period(s) of compliant operation.

REFERENCES

Aspen 2006. E-mail from William Walters to James Adams, California Energy Commission, on December 26, 2006.

CH2M Hill 2006c. Applicant's Supplemental Responses to CEC Staff Data Requests 1-80 for the Sun Valley Energy Project (05-AFC-3). May 19, 2006.

Ferrara 2007. E-mail from Robert Ferrara, Standard Pacific Homes, to James Adams on April 17, 2007.

Riverside County Planning Department. General Plan. October 2003.

Riverside County Planning Department. General Plan. Sun City/Menifee Valley Area Plan. October 2003.

Riverside County Transportation and Land Management Agency 2006. Personal communication between Russell Brady and James Adams, California Energy Commission, on August 7, 2006.

Riverside County Transportation and Land Management Agency 2007a. Letter from John F. Tavaglione, Supervisor, Second District, Chairman of the Board, to Robert Worl, dated March 13, 2007.

Riverside County Transportation and Land Management Agency 2007b. E-mail from Russell Brady to James Adams on April 9, 2007.

VSE (Valle del Sol Energy, LLC). 2005a. Application for Certification for Sun Valley Energy Project, Volumes 1 and 2. Submitted to the California Energy Commission, December 1, 2005.

VSE (Valle de Sol Energy, LLC) 2006b. Data Adequacy Supplement for Sun Valley Energy Project, Application for Certification. January 12, 2006.

APPENDIX VR-1: STAFF'S VISUAL RESOURCES EVALUATION METHODOLOGY

Visual resources analysis has an inherent subjective aspect. Use of generally accepted criteria for determining environmental impact significance and a clearly described analytical approach aid in developing an analysis that can be readily understood.

Staff's methodology is based on the California Environmental Quality Act (CEQA) Guidelines. The methodology includes an evaluation of the visual characteristics of the existing setting, the visual characteristics of the proposed project, the circumstances affecting the viewer, and the degree of visual impact that the proposed project would cause.

ELEMENTS OF THE METHODOLOGY

Key Observation Points

A proposed project is potentially visible from a number of areas in a viewshed. Energy Commission staff evaluate the visual impact of the project using a Key Observation Point[2], or KOP. One or more KOPs are selected to be representative of the most critical locations from which the proposed project would be seen. A KOP is representative of a location from which to conduct a detailed analysis of the project, and includes an existing condition/setting photograph, and simulation of the proposed project using the existing condition photograph.

Prior to application submittal, staff participates in a site visit to select appropriate KOP(s) for the analysis. Other photos to demonstrate the general landscape character of the project area are also included, as appropriate.

LORS Consistency

Energy Commission staff consider federal, state, and local laws, ordinances, regulations, and standards (LORS) relevant to visual resources. Conflicts with such LORS can constitute significant visual impacts. For example visual staff examines land use planning documents, such as local government General Plans and Specific Plans, and zoning ordinances applicable to the project site and surrounding area to gain insight as to the type of land uses intended for the area, and the guidelines given for the protection or preservation of visual resources.

Visible Water Vapor Plume Frequency

Staff models the estimated turbine plume frequency and dimensions for the cooling tower and turbine exhaust using the Combustion Stack Visible Plume (CSVP) model, and a multi-year meteorological data set obtained for the area where the project is proposed.

[2] The use of KOPs or similar view locations is common in visual resource analysis. The US Bureau of Land Management and the US Forest Service use such an approach.

A plume frequency of 20 percent of seasonal (typically from November through April) daylight no rain/fog high visual contrast (i.e. “clear”) hours is used to determine potential plume impact significance. If it is determined that the seasonal daylight clear hour plume frequency is greater than 20 percent, then plume dimensions are determined and a significance analysis is included in the Visual Resources section of the Staff Assessment for the proposed project. Plume frequencies of less than 20 percent have been determined to generally have a less than significant impact.

California Environmental Quality Act Guidelines

The CEQA Guidelines define a “significant effect on the environment” to mean a “substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including . . . objects of historic or aesthetic significance” (California Code of Regulations, Title 14, Section 15382).

Appendix G Environmental Checklist Form of the CEQA Guidelines, under Aesthetics, lists the following four questions to be addressed regarding whether the potential impacts of a project are significant:

1. Would the project have a substantial adverse effect on a scenic vista?
2. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?
3. Would the project substantially degrade the existing visual character or quality of the site and its surroundings?
4. Would the project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

Staff answers each of the four checklist questions for the proposed project, including any related facility such as a transmission line or gas pipeline; and for both construction and operation phases.

The visual analysis typically distinguishes between three different impact durations: temporary impacts, typically lasting no longer than two years; short-term impacts, generally last no longer than five years; and long-term impacts, which are impacts with a duration greater than five years. In general, short-term impacts are not considered significant.

To help make these determinations, visual resource professionals often answer a series of questions developed to help focus the analysis, and examine various ways that the project could create an impact to scenic vistas. The Energy Commission’s Visual Resources staff has developed such a list for each of the four CEQA guideline questions, drawing upon published methodologies and academic resources (Smardon, et al.), as well as on past experience with other power plant siting cases.

To answer the first checklist question (Would the project have a substantial adverse effect on a scenic vista?), staff must determine if any such scenic vista exists within the viewshed of the various aspects of the project, and then determine if the project would have a substantial adverse effect on that vista.

Questions developed to help determine whether the project would significantly affect a scenic vista include:

1. Is the project located in the scenic view of a local/state/federal-designated scenic vista?
2. Is there compelling evidence to show that the view is designated/valued by the local community?
3. Will the project eliminate or block views of valuable visual resources?
4. Would the project create a water vapor plume that could have an adverse effect on a state/federal/local-designated scenic vista?

To help answer the second CEQA checklist question above (Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?), staff developed the following questions:

1. Is the project located in the scenic view from a local/state/federal-designated scenic highway?
2. Does the project site or its immediate vicinity contain scenic resources, such as trees, rock outcroppings, or historic structures that could be damaged by the project?
3. Would the project create a water vapor plume that could have an adverse effect on the view from a local/state/federal-designated scenic highway?

To answer the third question (Would the project substantially degrade the existing visual character or quality of the site and its surroundings?), staff assesses the existing visual character and quality of the project area, and then determines how the project would affect the character and quality of the project viewshed. To assess whether the project has the potential to substantially degrade the present visual character or quality, staff uses personal observation and such tools as visual simulations to determine if an impact is significant and mitigation is required to reduce the impact to a less-than-significant level. To make that determination, staff examines many factors, such as: how many viewers can see a particular view and for how long, collectively called “viewer exposure;” and to what degree would the project change the aspects of a given view, such as whether the project’s components would block a particular view.

To help determine how the community rates and values the visual character and quality of a given site, and whether the project would substantially alter the present visual character or quality, staff developed the following questions:

1. How many residential, recreational, and traveling (motorist) viewers would have views of the project?
2. Is the project site properly zoned?
3. Would a conditional use permit and/or height variance have been required from the city/county (if so what conditions would the city/county place on the power plant)?
4. Does the project conform to the clear written declarations of local/state/federal agencies to protect designated visual resources of importance or the valued

aesthetic character of a neighborhood (said declaration must be clear, concise, and uncompromised by conflicting declarations, and be an official action of the governing body (City Council/Board of Supervisors) such as a General Plan element, zoning ordinance, or design guideline)?

5. Will the project substantially alter the existing viewshed, including any changes in natural terrain?
6. Does the project substantially change the existing setting?
7. Has the applicant proposed landscaping?
8. Would the project create a water vapor plume that could have an adverse effect on a KOP view?

The process of answering these questions includes an examination of the present views within the project viewshed in terms of aesthetics (quality of a view), followed by an assessment of how the view would be affected by the project. This could be described as an analysis of how well the project area can absorb the project into the landscape.

Staff attempts to determine if the local community values a particular view that may be affected by the project. To do this, staff searches applicable planning documents covering the project area produced by local public agencies, and information prepared by community groups. The Energy Commission gives due deference to official statements by elected governmental bodies concerning the value of visual resources within the project area.

To answer the fourth CEQA Guidelines checklist question (Would the project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?), staff analyzes the project's lighting plans to ensure they fit with established norms for low-impact lighting designs, and then answers the following questions to determine if a potential for impact from night-lighting exists:

1. With the Energy Commission's standard condition of certification for lighting control, would light or glare be reduced to acceptable levels?
2. Will the project result in significant amounts of backscatter light into the nighttime sky?

APPENDIX VR-2: VISIBLE PLUME MODELING ANALYSIS

William Walters

INTRODUCTION

The following provides the assessment of the Sun Valley Energy Project (SVEP) cooling tower and gas turbine exhaust stack visible plumes. Staff completed a modeling analysis for the applicant's proposed unabated cooling tower and turbine design based on data provided by the applicant.

PROJECT DESCRIPTION

The proposed project will utilize five General Electric LMS100 gas turbines which will be operated in simple-cycle mode. The applicant has also proposed a five-cell mechanical-draft cooling tower. Because of the intercooler characteristic of the LMS100 type gas combustion turbine, the gas turbine cooling load is significantly larger than the gas turbine cooling load for other simple-cycle gas turbines. The intercooler removes heat from the gas turbine inlet air after it has been compressed in the gas turbine compressor's low pressure section and before it is fed into the gas turbine compressor's high pressure section. The intercooler closed-loop cooling water in turn is cooled by the cooling tower's recirculating water flow in a non-contact heat exchanger. The applicant has not proposed to use any methods to abate visible plumes from the cooling towers.

VISIBLE PLUME MODELING METHODS

PLUME FREQUENCY AND DIMENSION MODELING

The Combustion Stack Visible Plume (CSVP) model was used to estimate plume frequency and plume dimensions for the cooling tower exhaust. This model provides conservative estimates of both plume frequency and plume size. This model uses hourly cooling tower exhaust parameters and hourly ambient condition data to determine the plume frequency. This model is based on the algorithms of the Industrial Source Complex Model (Version 2), that determine temperatures at the plume centerline, but this model does not incorporate building downwash.

The modeling method combines the cooling tower cell exhausts into an equivalent single stack. This method may overestimate cooling tower plume size (particularly height) during plume hours with higher winds due to little cell interaction and the potential for building downwash, but will be more accurate during low wind and calm periods when the exhausts from the cooling tower cells will combine into one coherent body. Wind speeds are set to 1 m/s during calm hours and an urban land classification was used in the modeling analysis.

CLOUD COVER DATA ANALYSIS METHOD

A plume frequency of 20 percent of seasonal (November through April) daylight no rain/fog high visual contrast (i.e. "clear") hours is used to determine potential plume

impact significance. The methodology used to determine high visual contrast hours is provided below:

> The Energy Commission has identified a "clear" sky category during which plumes have the greatest potential to cause adverse visual impacts. For this project the meteorological data set[3] used in the analysis categorizes total sky cover as 0 (clear), 3 (scattered), 5 (broken), and 8 or 9 (overcast), and "-" (obscured). For the purpose of estimating the high visual contrast hours staff has included in the "clear" category a) all hours with total sky cover defined as "clear" plus b) half of the non-obscured hours with unlimited ceiling height (i.e. hours with a sky opacity equal to or less than 50%). The rationale for including these two components in this category is as follows: a) plumes typically contrast most with sky under clear conditions and b) for a substantial portion of the time when total sky cover is not clear or obscured the opacity of the sky cover is relatively low (equal to or less than 50%), and these clouds do not substantially reduce contrast with plumes. Staff has estimated that approximately half of the hours with a sky opacity of less than 50% can be considered high visual contrast hours and are included in the "clear" sky definition.

If it is determined that the seasonal daylight clear hour plume frequency is greater than 20 percent plume dimensions are calculated, and a significance analysis of the plumes is included in the Visual Resources section of the Staff Assessment.

COOLING TOWER VISIBLE PLUME MODELING ANALYSIS

COOLING TOWER DESIGN AND OPERATING PARAMETERS

The following cooling tower design characteristics, presented below in **VISIBLE PLUME Table 1**, were determined through a review of the applicant's AFC (VSE 2005b, Table 8.1B-4) and data responses (CH2M Hill 2006c, Data Response #70). The data presented was used to model the cooling tower plume frequency and dimensions.

VISIBLE PLUME Table 1
Cooling Tower Operating and Exhaust Parameters

Parameter		Cooling Tower Design Parameters		
Number of Cells		5 (1 x 5)		
Cell Height		40 feet (12.19 meters)		
Cell Stack Diameter		22.01 feet (6.71 meters)		
Case	**Inlet Air Ambient Condition**	**Heat Rejection Rate (MW)**	**Exhaust Flow Rate (lbs/hr)**	**Exhaust Temperature (°F)**
1	20°F, 60% RH	145	6,348,000	107
2	59°F, 60% RH	160	10,116,431	102
3	95°F, 60% RH	176	12,612,612	111

Source: Hill 2006c, Data Response #70, with height updated using subsequent applicant response.

[3] This analysis uses a March Air Force Base meteorological data set obtained from the National Climatic Data Center (NCDC). This location is reasonably close to the site and would provide representative temperature and wind conditions. Additionally, this is the closest known meteorological station that provides the meteorological variables necessary to determine "clear" hours.

The cooling tower design for this project is markedly different than the dozens of cooling towers evaluated for siting cases from 2001 to present. Specifically, this cooling tower employs a much higher "range", which is the difference in the temperature of the incoming and returning water flows into and out of the cooling tower, and also employs a very low air flow to heat rejection ratio (i.e. the amount of air flow through the cooling tower per quantity of heat rejected from the cooling tower). The range for this cooling is designed to be 40^{o}F, while the range for combined cycle cooling towers is more typically designed to be about 17^{o}F. The hotter incoming water allows the cooling tower to be designed smaller and use less air, but this increases the amount of heat and water emitted per unit air volume and that causes an increase in the plume formation potential from the cooling tower.

A comparison of the mass air flow/heat rejection ratio for this cooling tower versus other recent Southern California siting case cooling towers is as follows:

Sun Valley – 5.5 to 9.0 kg/s/MW
Inland Empire – 13.6 to 16.2 kg/s/MW (duct firing), 16.1 to 32.8 (base load)
Vernon – 13.7 to 13.9 (duct firing), 18.1 to 18.5 kg/s/MW (base load)

The Sun Valley cooling tower is designed to have less than one-half of the comparative relative air flow at low temperatures and less than 70 percent of the comparative relative air flow at high temperatures.

COOLING TOWER VISIBLE PLUME MODELING RESULTS

VISIBLE PLUME Table 2 provides the CSVP model visible plume frequency results for year round full load operation using a five-year (1997-2001) March Air Force Base (AFB) meteorological data set, obtained from NCDC.

VISIBLE PLUME Table 2
Predicted Hours with Cooling Tower Visible Plumes
Year Round Full Load Operation Case
March AFB 1997-2001 Meteorological Data

Case	Available (hr)	Plume (hr)	Percent
All Hours	42,387	33,229	78.4
Daylight Hours	21,452	13,247	61.8
Daylight No Rain No Fog	18,761	10,594	56.5
Seasonal Daylight No Rain No Fog*	8,291	6,531	78.8
Daylight Clear Hours	8,720	3,898	**44.7**
May-Oct Daylight Clear	5,812	1,861	**32.0**
Seasonal Daylight Clear*	2,908	2,037	**70.0**

*Seasonal conditions occur anytime from November through April.

The plant design, incorporating several conservative operating assumptions indicates that the cooling tower plume frequency potential (assuming year round full load operation, 100 percent capacity factor) will be significantly greater than the 20 percent threshold trigger. However, the annual capacity factor for this facility is expected to be significantly less than 100 percent. Recent Prosym® modeling runs performed by the Energy Commissions Electricity Analysis Office indicate operations could occur as high as 22 percent of annual daylight hours, 24 percent of summer daylight hours and 19 percent of winter daylight hours (CEC 2007). However, the inputs to this model have

not been finalized and the assumptions in this model regarding future generation, including significant additions to renewable generation sources could be overestimated, which would underestimate the potential future operations of this facility.

The applicant has estimated that their initial operation will be limited to 40 percent of summer hours. For the purposes of modeling that was assumed to be June through September, and an evaluation of daily load profiles then suggests normal daily operating hours of roughly 11AM to 9PM, which would provide the 40 percent capacity factor. The CSVP modeling results were modified to only assume these particular operating hours and **VISIBLE PLUME Table 3** provides the resulting daily clear hour plume frequencies.

VISIBLE PLUME Table 3
Predicted Hours with Cooling Tower Visible Plumes
Applicant Summer Only Operation Case
March AFB 1997-2001 Meteorological Data

Case	Available (hr)	Plume (hr)	Percent
Annual Daylight Clear Hours	8,720	230	2.6
May-Oct Daylight Clear Hours	5,812	230	4.0
June-Sep Daylight Clear Hours	2,908	230	**7.9**

The applicant summer only operations case results in significantly lower daylight clear plume frequencies due to the resulting assumption that the plant will not be operating during the early morning hours and will only operate during the peak of summer. With the assumed restriction in operating hours, the plume frequency during the operating period of June through September was found to be less than 20 percent. However, there are no limitations to operation proposed by the applicant, so operations could be significantly greater than their estimate depending on actual market conditions.

In order for staff to be confident its findings regarding the potential future significance of plumes from this project are appropriate, staff has selected a worst-case basis of an annual capacity factor of 65 percent. After reviewing the 2005 SCE load data compiled from electronic data available from the Federal Energy Regulatory Commission (FERC 2006), staff selected an overall power demand split of 60/40 between the May to October vs. November to April periods. Combining the annual capacity factor and the seasonal power demand splits results in an estimated seasonal capacity factor of 78 percent from May to October and 52 percent from November through April. This determination was made considering that: 1) the applicant is not requesting any operating limitations; 2) significant uncertainly regarding the potential worst case future operations; and 3) the cooling tower design is very conducive to plume formation with the plume potential forecast to occur more than one-half of daylight hours. For this worst-case operating profile, an evaluation of normal daily load profiles from the 2005 SCE load data suggests normal daily operating hours of 6 am through 1 am for May through October, and 9 am through 9 pm for November through April. The CSVP modeling results were modified to only assume these particular operating hours and **VISIBLE PLUME Table 4** provides the resulting daily clear hour plume frequencies for these two seasonal periods.

VISIBLE PLUME Table 4
Predicted Hours with Cooling Tower Visible Plumes
Future 65 Percent Annual Capacity Operation Case
March AFB 1997-2001 Meteorological Data

Case	Available (hr)	Plume (hr)	Percent
Annual Daylight Clear Hours	8,720	3,061	**35.1**
May-Oct Daylight Clear Hours	5,812	1,640	**28.2**
Seasonal Daylight Clear Hours*	2,908	1,421	**48.9**

*Seasonal conditions occur anytime from November through April.

The plume frequencies remain well over 20% of the seasonal (from November through April) daylight clear hours, therefore the seasonal cooling tower plume dimensions were estimated. These dimensions are estimated by the CSVP model and presented in **VISIBLE PLUME Table 5**.

VISIBLE PLUME Table 5
Predicted Cooling Tower Visible Plume Dimensions

	Cooling Tower Seasonal "Clear" Hours Plume Dimensions Meters (feet)		
Percentile	**Length**	**Height**	**Width**
1%	207(679)	222 (792)	97 (319)
5%	84 (276)	112 (366)	50 (165)
10%	41 (135)	75 (247)	33 (109)
20%	**24 (78)**	**44 (145)**	**26 (87)**
30%	16 (53)	30 (99)	24 (78)
40%	9 (28)	21 (67)	19 (64)

Results include the cooling tower stack height, see VISIBLE PLUME Table 1.

Predicted reasonable worst-case plume sizes estimates for the May-October period are provided in **VISIBLE PLUME Table 6**.

VISIBLE PLUME Table 6
Predicted Cooling Tower Visible Plume Dimensions

	Cooling Tower May-October "Clear" Hours Plume Dimensions Meters (feet)		
Percentile	**Length**	**Height**	**Width**
1%	363 (1190)	261 (856)	94 (308)
5%	241 (789)	158 (518)	59 (196)
10%	41 (135)	76 (251)	30 (97)
20%	**12 (39)**	**28 (91)**	**21 (68)**
30%	---	---	---
40%	---	---	---

Results include the cooling tower stack height, see VISIBLE PLUME Table 1.
"---" = no plumes predicted at that frequency percentile

TURBINE EXHAUST VISIBLE PLUME ASSESSMENT

The temperature of the turbine exhaust exceeds 700^{o}F under normal operating conditions. Based on staff's previous siting case experience of modeling simple cycle gas turbines with exhaust temperatures of this magnitude, when the gas turbine exhausts are mixed with the ambient air, the resulting plume will remain well below the water vapor saturation curve. Therefore, there is no potential for water vapor condensation and no visible steam plumes would form during any meteorological

conditions at the project site. Therefore, staff did not analyze the turbine exhaust stack further for potential visible plumes.

CONCLUSIONS

Visible water vapor plumes from the proposed SVEP cooling tower could occur greater than 20 percent of seasonal daylight clear hours depending on facility operation. Therefore, further visual impact analysis of the expected plume frequencies and plume sizes has been completed.

Visible water vapor plumes are not expected to form at the proposed SVEP turbine exhaust stacks during any meteorological conditions at the project site.

REFERENCES

VSE (Valle del Sol Energy, LLC). 2005b. Application for Certification for Sun Valley Energy Project, Volumes 1 and 2. Submitted to the California Energy Commission, December 1, 2005.

CH2M Hill 2006c. Applicant's Supplemental Responses to CEC Staff Data Requests 1-80 for the Sun Valley Energy Project (05-AFC-3). May 19, 2006.

FERC (Federal Energy Regulatory Commission). 2006. Electronic Quarterly Reports for 2005 Southern California Load Demand. http://www.ferc.gov/docs-filing/eqr.asp. Accessed 2006.

CEC. 2007a. Prosym® modeling results for LMS100 turbines in Southern California provided by Angela Tanghetti of the Energy Commissions Electricity Analysis Office to William Walters, Aspen Environmental Group. January 18, 2007.

VISUAL RESOURCES - Figure 1

Sun Valley Energy Project - Looking North at Project Site from the intersection of Rouse and Junipero Roads

APRIL 2007

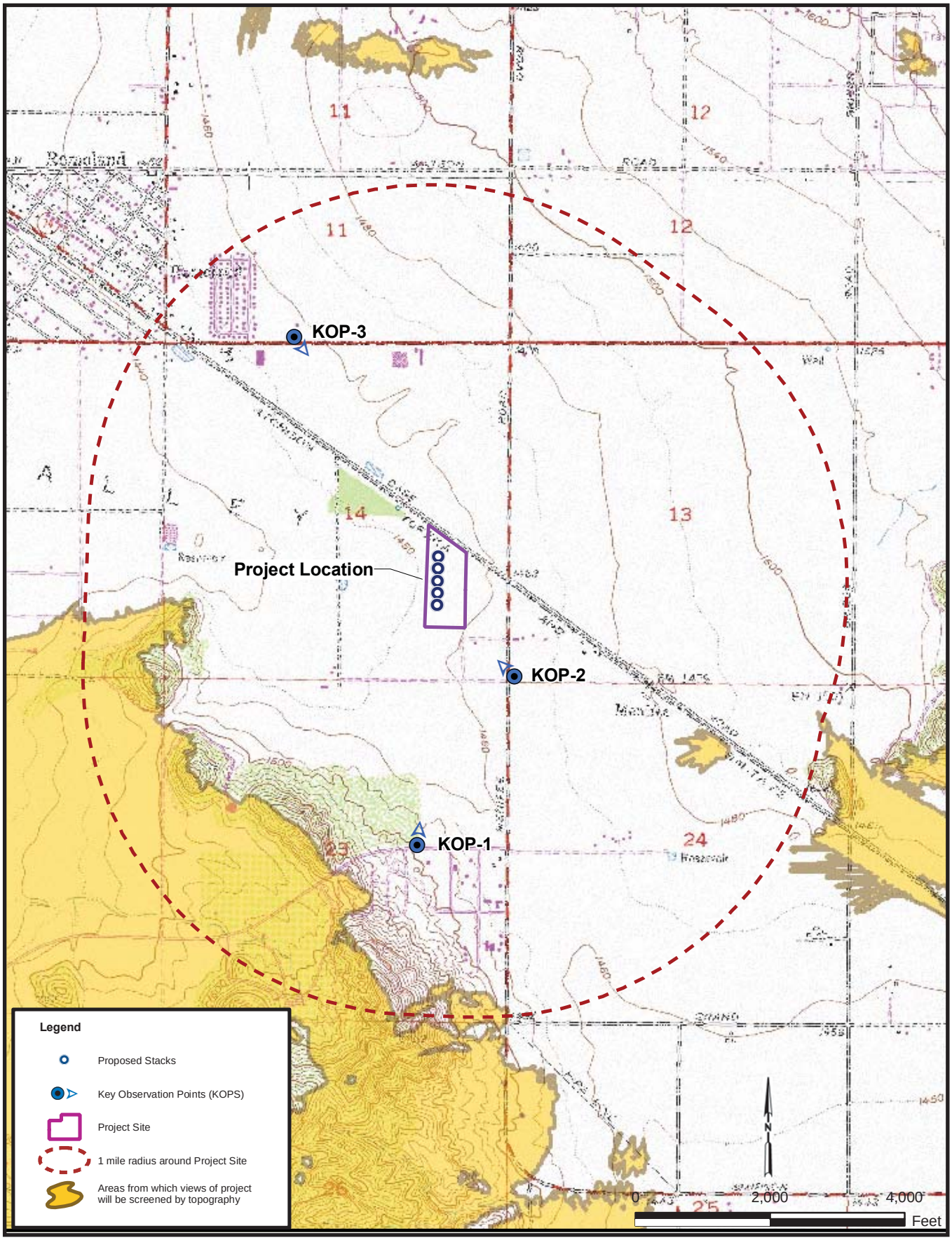
VISUAL RESOURCES

CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, APRIL 2007

SOURCE: Photo Taken by Commission Staff on 2/22/2006

VISUAL RESOURCES - FIGURE 2

Sun Valley Energy Project - Project Visibility and Key Observation Points (KOP) Locations



CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, APRIL 2007

SOURCE: AFC Figure 8.13-1

VISUAL RESOURCES - FIGURE 3A

Sun Valley Energy Project - KOP 1 - Existing view looking North on Junipero Road toward the proposed project site from the intersection with McCall Road

APRIL 2007

VISUAL RESOURCES

CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, APRIL 2007

SOURCE: AFC Figure 8.13-2A

VISUAL RESOURCES - FIGURE 3B

Sun Valley Energy Project - KOP 1 - Simulated view of the proposed project site as seen from Junipero Road at McCall Road

CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, APRIL 2007

SOURCE: AFC Figure 8.13-2B

VISUAL RESOURCES - FIGURE 4A

Sun Valley Energy Project - KOP 2 - Existing view looking northwest toward the proposed project site from the residential subdivison under development east of Menifee Road

CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, APRIL 2007

SOURCE: AFC Figure 8.13 -3A

VISUAL RESOURCES - FIGURE 4B

Sun Valley Energy Project - KOP 2 - Simulated view of the proposed project site from the residential subdivison under development east of Menifee Road

CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, APRIL 2007

SOURCE: AFC Figure 8.13 - 3B

VISUAL RESOURCES - FIGURE 5A

Sun Valley Energy Project - KOP 3 - Existing view looking southeast toward the proposed project site from the exit of the parking lot serving the Hamshaw Farms market and the Romoland Post Office on the north side of SR-74

CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, APRIL 2007

SOURCE: AFC Figure 8.13-4A

VISUAL RESOURCES - FIGURE 5B

Sun Valley Energy Project - KOP 3 - Simulated view of the proposed project site from the exit of the parking lot serving Hamshaw Farms Market and the Romoland Post Office on the north side of SR-74

CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, APRIL 2007

SOURCE: AFC Figure 8.13-4B

WASTE MANAGEMENT

Ellie Townsend-Hough

SUMMARY OF CONCLUSIONS

Management of the waste generated during construction and operation of the Sun Valley Energy Project (SVEP) or those associated with existing on-site contamination would not result in any significant adverse impacts if measures proposed in the Application for Certification and the proposed Conditions of Certification are implemented.

INTRODUCTION

This Preliminary Staff Assessment (PSA) presents an analysis of issues associated with managing wastes generated from constructing and operating the proposed Sun Valley Energy Project (SVEP) and any hazardous wastes already existing on-site as a result of past activities. Staff evaluated the proposed waste management plans and mitigation measures designed to reduce the risks and environmental impacts associated with handling, storing, and disposing of project-related hazardous and nonhazardous wastes and for potential site remediation. The technical scope of this analysis encompasses solid wastes existing on-site and those generated during facility construction and operation. Wastewater is discussed in the **Soil and Water Resources** section of this document.

Energy Commission staff's objectives in its waste management analysis are to ensure that:

- The management of the wastes would be in compliance with all applicable laws, ordinances, regulations, and standards (LORS). Compliance with LORS ensures that wastes generated during the construction and operation of the proposed project would be managed in an environmentally safe manner.
- The disposal of project wastes would not result in significant adverse impacts to existing waste disposal facilities.
- Upon project completion, the site is managed such that contaminants would not pose a significant risk to humans or the environment.

LAWS, ORDINANCES, REGULATION, AND STANDARDS

WASTE MANAGEMENT Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable Law	Description
Federal	
42 U.S.C. § 6922 Resource Conservation and Recovery Act	The Resource Conservation and Recovery Act (RCRA) establish requirements for the management of hazardous wastes from the time of generation to the point of ultimate treatment or disposal. Section 6922 requires generators of hazardous waste to comply with requirements regarding: • Record keeping practices which identify quantities of hazardous wastes generated and their disposition, • Labeling practices and use of appropriate containers, • Use of a manifest system for transportation, and • Submission of periodic reports to the Environmental Protection Agency (EPA) or authorized state agency.
Title 40, Code of Federal Regulations, part 260	These sections contain regulations promulgated by the EPA to implement the requirements of RCRA as described above. Characteristics of hazardous waste are described in terms of ignitability, corrosivity, reactivity, and toxicity, and specific types of wastes are listed.
State	
California Health and Safety Code §25100 et seq. (Hazardous Waste Control Act of 1972, as amended)	This act creates the framework under which hazardous wastes must be managed in California. It mandates the State Department of Health Services (now the Department of Toxic Substances Control (DTSC) under the California Environmental Protection Agency (Cal/EPA)) to develop and publish a list of hazardous and extremely hazardous wastes, and to develop and adopt criteria and guidelines for the identification of such wastes. It also requires hazardous waste generators to file notification statements with Cal/EPA and creates a manifest system to be used when transporting such wastes.
Title 14, California Code of Regulations, §17200 et seq. (Minimum Standards for Solid Waste Handling and Disposal)	These regulations set forth minimum standards for solid waste handling and disposal, guidelines to ensure conformance of solid waste facilities with county solid waste management plans, as well as enforcement and administration provisions.
Title 22, California Code of Regulations, §66262.10 et seq. (Generator Standards)	These sections establish requirements for generators of hazardous waste. Under these sections, waste generators must determine if their wastes are hazardous according to either specified characteristics or lists of wastes. As in the federal program, hazardous waste generators must obtain EPA identification numbers, prepare manifests before transporting the waste off-site, and use only permitted treatment, storage, and disposal facilities. Additionally, hazardous waste must only be handled by registered hazardous waste transporters. Generator requirements for record keeping, reporting, packaging, and labeling are also established and are enforced by the Cal-EPA Department of Toxic Substances Control.

Title 22, California Code of Regulations, §67100.1 et seq. Hazardous Waste Source Reduction and Management Review	These sections establish reporting requirements for generators of certain hazardous and extremely hazardous wastes in excess of specified limits. The required reports must indicate the generator's waste management plans and performance over the reporting period.
The Asbestos Airborne Toxic Control Measure	The California Air Resources Board (CARB) adopted the Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations. The ATCM requires specific mitigation measures to prevent off-site migration of asbestos-containing dust.
Title 8 California Code of Regulations §**1529 and §5208**	These are regulations requiring the proper removal of asbestos containing materials and are enforced by California Occupational Safety and health Administration (Cal/OSHA).
California Fire Code	
Local	Enforced by the local Fire Department, and includes a requirement that businesses obtain permits for the use and storage of specified hazardous materials. This permit must be obtained before storing regulated hazardous wastes at the project site.
County of Riverside General Plan, Safety Element, Policy S6.1	Provides guidance for local management of hazardous waste and materials.
County of Riverside County Hazardous Waste Management Plant (CHWMP)	Provides guidance for local management of hazardous wastes and materials; encourages and promotes the programs, practices, and recommendations contained in the County Hazardous Waste Management Plan and gives the highest waste management priority to the reduction of hazardous waste at its source.
County of Riverside General Plan, Safety Element, SCHWMA	Through membership in the Southern California Hazardous Waste Management Authority (SCHWMA), the County has agreed to work on a regional level to solve problems involving hazardous waste, which are met by siting hazardous waste management facilities (transfer, treatment and/or repository) capable of processing an amount of waste equal to or larger than the amount generated within the county.
County of Riverside Ordinance No. 615.3 (Riverside County Code No. 8.60.010)	Designates Riverside County Department of Environmental Health as the enforcing agency and requires that hazardous waste generators obtain a permit.
County of Riverside, Planning Department, Advisory Conditional Use Permit (CUP) Section 80.PLANNING.17 Waste Management	Specifies that the developer plan for and have appropriate areas for storage and loading recycle materials.

SETTING

The surrounding area that includes the proposed project site is 27 acres of farmland most recently used for the production of wheat, though no crop will be planted in 2007. The site is surrounded by farmland with farm residences to the west of the site and is located near the intersection of Mathews Road and Mc Laughlin Road in unincorporated Romoland, California. A fenced equipment storage area is located west of the project site and the Burlington Northern and Santa Fe railroad borders the site to the north as does the Southern California Edison Valley Substation and several additional commercial/industrial businesses (VSE 2005b, Appendix 8.14). The area east of the project site across Mathews and Menifee Roads is being developed as the Menifee Ranch Subdivision with housing units now under construction. Valle del Sol Energy, LLC, has completed the purchase of 37.5 acres and plans to build the project on 20 a 20-acre section of that site.

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

Two issues are addressed in this Waste Management section: 1) potential site contamination, and 2) the methods used to handle wastes (Class I hazardous wastes, Class II designated wastes, and Class III municipal solid wastes) during construction and operations. The methods staff uses and the thresholds for determining significance of impacts are different for these two issues.

For any site proposed for the construction of a power plant in California, the applicant must provide sufficient documentation about the nature of any existing contamination on the site. Staff requires that at the least, a Phase I Environmental Site Assessment (ESA) be prepared and submitted to the Energy Commission for staff's review and evaluation. A Phase I ESA provides a history of use of the site, often as far back as the mid-1800s, and a list of any hazardous waste release within a certain distance of the site. If a site is considered contaminated, a Phase II Environmental Site Assessment may be conducted, ASTM test E1903, a more detailed investigation involving chemical analysis for hazardous substances and/or petroleum hydrocarbons. This detailed screening verifies the level of contamination.

Staff may utilize either of two approaches or both for determining if hazardous waste present on the site would pose a risk to on-site workers (construction or operations) or the public. The first approach follows standards promulgated by Cal-EPA, principally by the Department of Toxic Substances Control (DTSC), the Office of Environmental Health Hazard Assessment (OEHHA), and the Regional Water Quality Control Boards (RWQCB). Staff would compare the levels of contaminants found on-site with standards such as the Cal-EPA Office of Environmental Health Hazard Assessment (OEHHA) California Human Health Screening Levels (CHHSLs). If metals are suspected of being present at unsafe levels, staff would compare those levels to levels that occur naturally in soil or water as tabulated by DTSC or other federal agencies.

The second approach involves the preparation of a site-specific Human Health Risk Assessment and/or Ecological Risk Assessment. The human health risk assessment would follow Cal-EPA guidelines and must address all affected populations including the most burdened and compromised receptors. Staff would require the applicant to prepare such an assessment and would require some form of remediation if the human health cancer risk exceeded one-in-one million or the non-cancer hazard index exceeded 1.0, per 42 U.S.C. § 6922 (Resource Conservation and Recovery Act), and per California Health and Safety Code §25100 et seq. (Hazardous Waste Control Act of 1972, as amended). An ecological risk screening evaluation or risk assessment would be required if contaminants might pose a risk to biological receptors. The applicant also would follow Cal/EPA and Regional Water Board guidelines and if the ecological risks were significant, appropriate mitigation might be required.

Regarding the management of wastes generated during construction and operation, staff reviews the applicant's proposed solid and hazardous waste management methods and determines if the methods meet the state standards for waste reduction and recycling. Staff then reviews the available off-site treatment and disposal sites available and determined whether or not the proposed power plant's waste would have a significant impact on the disposal sites allotted daily, yearly, or lifetime volume of waste it is allowed to receive. Staff uses a threshold of less than 10 percent impact on a waste disposal facility to determine if the impact would be significant.

DIRECT/INDIRECT IMPACTS AND MITIGATION

Existing Contamination

Environmental Strategies Consulting conducted a Phase I ESA for Edison Mission Energy (EME). The Phase I ESA established that the proposed project site has always been unoccupied and used for agricultural purposes. There were no recognized environmental conditions (REC) located on the site. A REC is the presence or likely presence of any hazardous substances or petroleum products on a property under the conditions that indicated an existing release, past release, or a material threat of a release of any hazardous substance or petroleum products into structures on the property or in the ground, groundwater, or surface water of the property. However, due to the agricultural use at the proposed project site, staff proposed condition of certification **Waste-6** for site evaluation. **Waste-6** states that site activities involving movement of soils shall not commence until the site is adequately characterized.

Staff proposed conditions of certification **Waste-1** and **Waste-2** (which require having a Registered Professional Engineer or Geologist with experience in remedial investigation and feasibility studies available for consultation during soil excavation and grading activities) would be adequate to address any soil or groundwater contamination contingency that may be encountered.

Construction Impacts and Mitigation

Site preparation and construction of the proposed generating plant and associated facilities would last approximately 12 months, and would generate both nonhazardous and hazardous wastes in solid and liquid forms. Before construction can begin, the

project owner would be required to develop and implement a Construction Waste Management Plan per proposed Condition of Certification **Waste-5**.

Metal debris from welding/cutting activities, packing materials, electrical wiring, and empty non-hazardous chemical containers would be generated during construction. Approximately 15 tons of waste metal and 40 tons of excess concrete are anticipated to be generated during construction. Nonhazardous solid wastes generated during construction would include up to 60 tons of wood, paper, glass, and plastic waste products comprised of excess lumber, packing materials, insulation, and empty non-hazardous chemical containers (VSE 2005b, Section 8.14.1.2.1). Approximately 115 tons of solid waste will be generated during construction of the SVEP. All non-hazardous wastes would be recycled to the extent possible and non-recyclable wastes would be collected by a licensed hauler and disposed of in a solid waste disposal facility, per Title 14, California Code of Regulations, §17200 et seq.

Some hazardous and nonhazardous wastes would be generated during construction of the proposed water and natural gas pipelines. These would consist of routine construction wastes such as building materials, gasoline and diesel fuel leaks, lubricants (oil and grease), oily rags, paper, wood, scrap metal, etc. These amounts would be minor and if handled in the same manner as that described for the project site, would present an insignificant risk to workers and the public.

Since excavation, activities and trenching during the construction of the proposed water pipeline may encounter potentially contaminated soils and/or groundwater, specific handling, disposal, and other precautions may be necessary per 22 CCR 66262.10. Staff recommends that proposed conditions of certification **Waste-1** and **Waste-2** would be adequate to address any soil and/or groundwater contamination contingency that may be encountered during construction of the process water pipeline and would ensure compliance with 22 CCR 66262.10.

Hazardous wastes anticipated to be generated during construction include welding materials, paint, flushing and cleaning fluids, solvents, asbestos-containing materials, and lead-based paint. The quantities of flushing and cleaning fluids are estimated to be once or twice the internal volume of the pipes cleaned. The quantity of all other hazardous wastes is expected to be minimal (VSE 2005b, Section 8.14.1.2).

The applicant would be considered the generator of hazardous wastes at this site during the construction period and therefore, prior to construction, the project owner would be required to obtain a unique hazardous waste generator identification number from the Department of Toxic Substances Control (DTSC) in accordance with DTSC regulatory authority, per proposed Condition of Certification **Waste-3**. Wastes would be accumulated at satellite locations and then transported daily to the construction contractor's 90-day hazardous waste storage area located in the construction laydown area. The wastes thus accumulated would be properly manifested, transported and disposed of at a permitted hazardous waste management facility by licensed hazardous waste collection and disposal companies. Staff reviewed the disposal methods described in AFC Waste Management subsection 8.14.2 and concluded that all wastes would be disposed in accordance with applicable LORS. Should any construction waste management-related enforcement action be taken or initiated by a regulatory agency,

the project owner would be required by proposed Condition of Certification **Waste-4** to notify the Compliance Project Manager (CPM) whenever the owner becomes aware of this action.

In section 8.14.4 of the AFC, the applicant states that handling and management of construction waste would follow the hierarchical approach of source reduction, recycling, treatment, and disposal. The minimal quantities of hazardous waste generated would not significantly impact the treatment and disposal resources available in California.

Operation Impacts and Mitigation

The proposed SVEP would generate both nonhazardous and hazardous wastes in solid and liquid forms under normal operating conditions. Before operations can begin, the project owner would be required to develop and implement an Operations Waste Management Plan as per proposed Condition of Certification **Waste-5**.

Nonhazardous Solid Wastes

Nonhazardous solid wastes anticipated to be generated during operation include up to 50 cubic yards of waste annually, comprised of maintenance wastes and office wastes. The Board promotes a **Zero Waste California** in partnership with local government, industry, and the public. This means managing the estimated 88 million tons of waste generated each year by reducing waste whenever possible, promoting the management of all materials to their highest and best use, regulating the handling, processing and disposal of solid waste, and protecting public health and safety and the environment. These wastes would be recycled to the extent possible.

Hazardous Wastes

The applicant would be the generator of hazardous wastes at this site during operations and thus the project owner's unique hazardous waste generator identification number obtained during construction would still be required for generation of hazardous waste, during operation per proposed Condition of Certification **Waste-3**. Hazardous wastes anticipated to be generated during routine project operation include waste lubricating oil, lubrication oil filters from the combustion turbines, spent Selective Catalytic Reduction (SCR) catalyst, oily rags, cooling tower sludge, laboratory analysis waste, oil sorbents, and chemical feed area drainage. Staff concurs that Table 8.14-1 of the AFC provides a complete list of these wastes, the amounts expected to be generated, and their disposal methods. The amounts of hazardous wastes generated during the operation of SVEP would be minimal, and recycling methods would be used to the extent possible. The remaining hazardous waste would be temporarily stored on-site, per the California Fire Code and Title 22, California Code of Regulations, §66262.10 et seq., and disposed of by licensed hazardous waste collection and disposal companies in accordance with all applicable regulations, per Title 22, California Code of Regulations, §66262.10 et seq. Furthermore, as in the construction phase, should any operations waste management-related enforcement action be taken or initiated by a regulatory agency, the project owner would be required by proposed Condition of Certification **Waste-4** to notify the CPM whenever the owner becomes aware of this action.

In section 8.14.4 of the AFC, the applicant states that handling and management of operational waste would follow the hierarchical approach of source reduction, recycling, treatment, and disposal. The minimal quantities of hazardous waste generated would not significantly impact the treatment and disposal resources available in California.

Impact on Existing Waste Disposal Facilities

Nonhazardous Solid Wastes

Nonhazardous waste disposal sites suitable for discarding project-related construction and operation wastes are identified in Section 8.14.2.3 of the AFC (VSE 2005b). During construction and operation of the proposed project, 115 tons of nonhazardous waste will be generated. The nonhazardous solid wastes generated yearly at SVEP would be recycled if possible, or disposed of in one of the Class III landfills located in Orange, Riverside and San Bernardino Counties (VSE 2005b).

The four landfills listed in **Waste Table 1** all have adequate remaining capacity and long term closure dates to make them all an adequate choice for disposing of solid wastes. The total amount of nonhazardous waste generated from project construction and operation will contribute less than one percent of available landfill capacity. Staff finds that disposal of the solid wastes generated by SVEP can occur without significantly impacting the capacity or remaining life of any of these facilities.

WASTE MANAGEMENT TABLE I
Solid Waste Disposal Facilities for SVEP Wastes

Landfill/Transfer Station	Location	Class
El Sobrante	Corona, CA	III
Badlands Sanitary Landfill	Moreno Valley, CA	III
California Street Landfill	Redlands, CA	III
Lamb Canyon Landfill	Beaumont, CA	III

Hazardous Wastes

Section 8.14.2.3.2 of the AFC discusses the three Class I landfills in California: the Clean Harbor Buttonwillow Landfill in Kern County, the Westmoreland Landfill in Imperial County, and the Kettleman Hills Landfill in Kings County. The Kettleman Hills facility also accepts Class II and Class III wastes. In total, there is an excess of 16 million cubic yards of remaining hazardous waste disposal capacity at these landfills, with up to 16 years of remaining operating lifetimes. In addition, the Kettleman Hills facility is in the process of permitting an additional 15 million cubic yards of disposal capacity, and the Buttonwillow facility is not expected to reach its capacity until 2040 at current disposal rates (VSE 2005a, Section 8.14.2.3.2). The amount of hazardous waste transported to these landfills has decreased in recent years due to source reduction efforts by generators and the transport of waste out of state that is hazardous under California law, but not federal law.

Most of the hazardous waste generated by the SVEP would be generated during facility construction and startup in the forms of flushing and cleaning liquids. Volumes of

hazardous wastes generated during facility operation would be minimal. The emission control catalysts would require regeneration every 3 to 5 years resulting in the generation of a total of 1200 pounds of waste material, which could require disposal in a Class I facility if recycling or regeneration proves infeasible. Accordingly, staff proposes Condition of Certification **Waste-7** to require that the cooling tower sludge be tested as per 22 CCR 66262.10, with the findings reported to the CPM in the monthly compliance report. Approximately 100 tons per year of cooling tower sludge would be generated during operation. All hazardous wastes generated during both construction and operation would be transported offsite to a permitted treatment, storage, or disposal (TSD) facility for appropriate disposition, preferably recycling. The volume of hazardous waste from the SVEP requiring off-site disposal would be far less than staff's threshold of significance (10 percent of the existing combined capacity of the three Class I landfills) and would therefore not significantly impact the capacity or remaining life of any of these facilities.

CUMULATIVE IMPACTS AND MITIGATION

As proposed, the quantities of nonhazardous and hazardous wastes generated during construction and operation of the SVEP would add to the total quantities of waste generated in the State of California. This facility would generate an estimated 115 tons of solid waste during construction and approximately 35 cubic yards per year during operation. In addition, the facility would produce approximately 400 gallons per year of laboratory analysis waste, 150 pounds of oil sorbents, and 100 pounds of cooling tower sludge each year. Overall, wastes would be generated in minimal quantities, recycling efforts would be prioritized wherever practical, and capacity is available in a variety of treatment and disposal facilities. Therefore, staff concludes that these added waste quantities generated by SVEP would not result in significant cumulative waste management impacts.

COMPLIANCE WITH LORS

Energy Commission staff concludes that the SVEP would be able to comply with all applicable LORS regulating the management of hazardous and non-hazardous wastes during facility construction and operation. The applicant is required to dispose of hazardous and non-hazardous wastes at facilities approved by the various departments within the California Environmental Protection Agency (Cal-EPA). Because hazardous wastes would be produced during both project construction and operation, the SVEP project would be required to obtain a hazardous waste generator identification number from the California Department of Toxic Substances Control (DTSC). Accordingly, SVEP would be required to properly store, package and label waste, use only approved transporters, prepare hazardous waste manifests, keep detailed records, and appropriately train employees. Pursuant to California Code of Regulations, Title 22, section 67100.1 et seq., a hazardous waste Source Reduction and Evaluation Review and Plan must be prepared by the SVEP.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

Agency Comments

The Department of Toxic Substances Control (DTSC) provided comments that required SVEP to supply documentation on the information that would normally be included in a Phase I ESA report. (DTSC 2005a). Appendix 8.14A of the SVEP AFC contains a copy of their Phase I ESA. Due to the historical agricultural use of the project site staff will require a site characterization with condition of certification **Waste-6**.

The County of Riverside, Planning Department, provided an Advisory Conditional Use Permit (CUP) for the SVEP dated July 20, 2006. In Section 80.PLANNING.17 Waste Management, the county recommends that the developer plan for and have appropriate areas for storage and loading recycle materials. It is expected that the applicant will include in their Construction and Operation Waste Management Plans provisions that are consistent with the county requirements for recycled waste. In addition, staff requires that adequate storage and transportation for non-recyclable and hazardous waste be established.

Public Comments

No written comments from the public regarding waste management have been received at this time.

CONCLUSIONS

Management of the wastes generated during construction and operation of the SVEP project would not result in any significant adverse impacts and would comply with applicable LORS if the waste management measures proposed in the AFC and the proposed conditions of certification are implemented.

Staff has proposed Conditions of Certification **Waste-1** through **7** which require that: 1) the project owner shall have an experienced Registered Professional Engineer or Geologist available for consultation during soil excavation and grading activities in the event that contaminated soils are encountered; 2) if potentially contaminated soil is unearthed during excavation at either the proposed site or linear facilities, the Registered Professional Engineer or Geologist shall inspect the site, determine the need for sampling nature, file a written report, and seek guidance on appropriate remediation measures from the CPM and the appropriate regulatory agencies; 3) the project owner shall obtain a unique hazardous waste generator identification number from the Department of Toxic Substances Control (DTSC) in accordance with DTSC regulatory authority; 4) the project owner shall notify the CPM whenever the owner becomes aware of any impending waste management-related enforcement action; 5) the project owner prepare and submit waste management plans for all wastes generated during construction and operation and submit them to the CPM; 6) site activities involving movement of soils shall not commence until the site is adequately characterized and if necessary, remediated: and 7) cooling tower sludge to be tested.

Prior to any site mobilization (activities), the site will be adequately characterized for the presence of hazardous waste in the soils, groundwater, and soil gas. If necessary, the site will be remediated and mitigation measures implemented to protect human health – both for on-site workers and the off-site public – and ecological receptors. If staff's proposed condition **Waste-6** is adopted, an insignificant risk would be posed to human and ecological receptors and this goal would be achieved.

Staff has reviewed Census 2000 information that shows the minority population by census block is 40.17 percent, and 43.28 percent which is less than staff's threshold of 50 percent within a 6-mile and 1-mile radius of the proposed SVEP (**See SOCIOECONOMICS Figure 1**). However, there are census blocks with greater than 50 percent minority population within the 6-mile radius. In the **Socioeconomics** section of this staff analysis, staff presents census tract information that shows that there are minority populations within one mile and six miles of the project. Since staff has added conditions of certification that would reduce the risk associated with hazardous waste to an insignificant level, staff concludes that there will be no significant impact from construction or operation of the power plant on` minority populations. Therefore, there are no environmental justice issues for Waste Management.

PROPOSED CONDITIONS OF CERTIFICATION

WASTE-1 The project owner shall provide the resume of a Registered Professional Engineer or Geologist, who shall be available for consultation during soil excavation and grading activities, to the Compliance Project Manager (CPM) for review and approval. The resume shall show experience in remedial investigation and feasibility studies.

The Registered Professional Engineer or Geologist shall be given full authority by the project owner to oversee any earth moving activities that have the potential to disturb contaminated soil.

Verification: At least 30 days prior to the start of site mobilization the project owner shall submit the resume of the Registered Professional Engineer or Geologist to the CPM for review and approval.

WASTE-2 If potentially contaminated soil is unearthed during excavation at either the proposed site or linear facilities as evidenced by discoloration, odor, detection by handheld instruments, or other signs, the Registered Professional Engineer or Geologist shall inspect the site, determine the need for sampling to confirm the nature and extent of contamination, and file a written report to the project owner and CPM stating the recommended course of action.

Depending on the nature and extent of contamination, the Registered Professional Engineer or Geologist shall have the authority to temporarily suspend construction activity at that location for the protection of workers or the public. If, in the opinion of the Registered Professional Engineer or Geologist, significant remediation may be required, the project owner shall

notify the Department of Toxic Substances Control for guidance and possible oversight.

Verification: The project owner shall submit any reports filed by the Registered Professional Engineer or Geologist to the CPM pursuant to this condition within five days of their receipt. The project owner shall notify the CPM within 24 hours of any orders issued to halt construction.

WASTE-3 The project owner shall obtain a hazardous waste generator identification number from the Department of Toxic Substances Control prior to generating any hazardous waste during construction and operations.

Verification: The project owner shall keep its copy of the identification number on file at the project site and notify the CPM via the relevant Monthly Compliance Report of its receipt.

WASTE-4 Upon becoming aware of any impending waste management-related enforcement action by any local, state, or federal authority, the project owner shall notify the CPM of any such action taken or proposed to be taken against the project itself, or against any waste hauler or disposal facility or treatment operator with which the owner contracts.

Verification: The project owner shall notify the CPM in writing within 10 days of becoming aware of an impending enforcement action. The CPM shall notify the project owner of any changes that will be required in the manner in which project-related wastes are managed.

WASTE-5 The project owner shall prepare a Construction Waste Management Plan and an Operation Waste Management Plan for all wastes generated during construction and operation of the facility, respectively, and shall submit both plans to the CPM for review and approval. The plans shall contain, at a minimum, the following:

- A description of all waste streams, including projections of frequency, amounts generated and hazard classifications; and
- Methods of managing each waste stream, including treatment methods and companies contracted with for treatment services, waste testing methods to assure correct classification, methods of transportation, disposal requirements and sites, and recycling and waste minimization/reduction plans.

Verification: No less than 30 days prior to the start of site mobilization, the project owner shall submit the Construction Waste Management Plan to the CPM for approval.

The Operation Waste Management Plan shall be submitted to the CPM no less than 30 days prior to the start of project operation for approval. The project owner shall submit any required revisions within 20 days of notification by the CPM.

In the Annual Compliance Reports, the project owner shall document the actual waste management methods used during the year and provide a comparison of the actual

methods used to those the planned management methods proposed in the original Operation Waste Management Plan.

WASTE-6 The project owner shall ensure that the site is properly characterized and remediated. The project owner shall prepare a work plan in narrative outline form detailing the number and location of samples of soil, and groundwater to be obtained and analyzed. The project owner shall submit this plan to the DTSC for review and comment, and to the CPM for review and approval. In no event shall any project construction commence that involves either the movement of contaminated soil or construction on contaminated soil until the CPM has determined that all necessary remediation has been accomplished.

Verification: At least sixty (60) days prior to the start of site mobilization, the project owner shall provide documentation that the site has been appropriately characterized to the CPM for review and approval. The project owner shall provide a copy of all correspondence to the CPM within 10 days of receipt. In the event that certain specific site activities need to start prior to full characterization and remediation, the project owner shall make such a request to the CPM for review and approval.

WASTE-7 The project owner shall ensure that the cooling tower sludge is tested as per 22 CCR 66262.10 and report the findings to the CPM.

Verification: The project shall include the results of sludge testing in a report provided to the CPM. If four consecutive tests show that the sludge is non-hazardous, the project owner may apply to the CPM to discontinue testing

REFERENCES

DTSC 2006a - Department of Toxic substances Control/ G. Holmes. Review of Sun Valley Energy Project Application for Certification and Appendices. February 23, 2006. Rec'd 02/23/2006.

VSE (Valle de Sol Energy, LLC). 2005b. Application for Certification for Sun Valley Energy Project, Volumes 1 and 2. Submitted to the California Energy Commission, December 1, 2005.

WORKER SAFETY AND FIRE PROTECTION

Rick Tyler and Alvin Greenberg

SUMMARY OF CONCLUSIONS

Staff concluded that if the applicant for the proposed Sun Valley Energy Project (SVEP) provides a Project Construction Safety and Health Program and a Project Operations and Maintenance Safety and Health Program, as required by Conditions of Certification **WORKER SAFETY -1, -2, -3, -4,** and **-5**, the project would incorporate sufficient measures to ensure adequate levels of industrial safety, and comply with applicable laws, ordinances, regulations, and standards. The proposed conditions of certification provide assurance that the Construction Safety and Health Program and the Operations and Maintenance Safety and Health Program proposed by the applicant will be reviewed by the appropriate agencies before implementation. The conditions also require verification that the proposed plans adequately assure worker safety and fire protection and comply with applicable laws, ordinances, regulations, and standards.

Staff also concludes that the proposed project would not have significant impacts on local fire protection services. The proposed facility would be located within an industrial area that is currently served by the local fire department. The fire risks of the proposed facility do not pose significant added demands on local fire protection services. Staff also concludes that the Riverside County Fire Department Hazmat Team is adequately equipped and staffed to respond to more serious hazardous materials incidents at the proposed facility with an adequate response time.

INTRODUCTION

Worker safety and fire protection is regulated through laws, ordinances, regulations, and standards (LORS), at the federal, state, and local levels. Industrial workers at the facility operate equipment and handle hazardous materials daily and may face hazards that can result in accidents and serious injury. Protection measures are employed to eliminate or reduce these hazards or to minimize the risk through special training, protective equipment and procedural controls.

The purpose of this Preliminary Staff Assessment (PSA) is to assess the worker safety and fire protection measures proposed by the Sun Valley Energy Project (SVEP) and to determine whether the applicant has proposed adequate measures to:

- comply with applicable safety LORS;
- protect the workers during construction and operation of the facility;
- protect against fire; and
- provide adequate emergency response procedures.

LAWS, ORDINANCES, REGULATION, AND STANDARDS

WORKER SAFETY AND FIRE PROTECTION Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable Law	Description
Federal	
29 U.S. Code sections 651 et seq (Occupational Safety and Health Act of 1970)	This Act mandates safety requirements in the workplace with the purpose of "[assuring] so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources" (29 USC § 651).
29 CFR sections 1910.1 to 1910.1500 (Occupational Safety and Health Administration Safety and Health Regulations)	These sections define the procedures for promulgating regulations and conducting inspections to implement and enforce safety and health procedures to protect workers, particularly in the industrial sector.
29 CFR sections 1952.170 to 1952.175	These sections provide Federal approval of California's plan for enforcement of its own Safety and Health requirements, in lieu of most of the Federal requirements found in 29 CFR §1910.1 to 1910.1500.
State	
8 CCR all applicable sections (Cal/OSHA regulations)	Requires that all employers follow these regulations as they pertain to the work involved. This includes regulations pertaining to safety matters during construction, commissioning, and operations of power plants, as well as safety around electrical components, fire safety, and hazardous materials use, storage, and handling.
24 CCR section 3, et seq.	Incorporates the current addition of the Uniform Building Code.
Health and Safety Code section 25500, et seq.	Risk Management Plan requirements for threshold quantity of listed acutely hazardous materials at a facility.
Health and Safety Code sections 25500 to 25541	Requires a Hazardous Material Business Plan detailing emergency response plans for hazardous materials emergency at a facility
Local (or locally enforced)	
1998 Edition of California Fire Code and all applicable NFPA standards (24	NFPA standards are incorporated into the California Uniform Fire Code. The fire code contains general provisions for fire safety, including: 1) required road and building access; 2) water supplies; 3) installation of fire protection and life safety systems; 4) fire-resistive construction; 5) general fire safety precautions; 6) storage

Applicable Law	Description
CCR Part 9)	of combustible materials; 7) exits and emergency escapes; and 8) fire alarm systems. The California Fire Code incorporates current editions of the UFC standards.
California Building Code Title 24, California Code of Regulations (24 CCR § 3, et seq.)	Comprised of eleven parts containing the building design and construction requirements relating to fire and life safety and structural safety. The California Building Standards Code incorporates current editions of the Uniform Building Code and includes the electrical, mechanical, energy, and fire codes applicable to the project.
Uniform Fire Code, 1997	Contains standards of the American Society for Testing and Materials and the NFPA. It is the United State's premier model fire code. It is updated annually as a supplement and published every third year by the International Fire Code Institute to include all approved code changes in a new edition.

SETTING

Fire support services to the site will be under the jurisdiction of the Riverside County Fire Department (RCFD). The closest RCFD station is No. 54 located at 25730 Sultanas Road, in Homeland. The station is approximately 2.5 miles away with a response time of about 3-4 minutes, and would provide first response to a fire at the project site. (VSE 2005b Section 8.16.2.4).

The Riverside County Hazardous Materials Support Team located in Station No. 34 at 32655 Haddock Street, in Winchester, approximately 5.8 miles from the project site is considered first responder for HazMat incidents, with a response time of about 7 minutes. Staff has determined that the hazardous materials response time is adequate and that the RCFD HazMat Response Team is adequately trained and equipped to respond in a timely manner.

Staff determined that the response time is adequate and consistent with the UFC and the NFPA.

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

Two issues are assessed in Worker Safety-Fire Protection:

1. The potential for impacts on the safety of workers during demolition, construction, and operations activities, and
2. Fire prevention/protection, emergency medical response, and hazardous materials spill response during demolition, construction, and operations.

Worker safety issues are a matter of adhering to the spirit and intent of the Cal-OSHA regulations. This is essentially a LORS compliance matter, and if all LORS are followed, workers will be adequately protected. Thus, the standard for staff's review and determination of significant impacts on workers is whether or not the applicant has

demonstrated adequate knowledge about and dedication to implementing all pertinent and relevant Cal-OSHA standards.

Regarding fire prevention matters, staff reviews and evaluates the on-site fire-fighting systems proposed by the applicant and the time needed for off-site local fire departments to respond to a fire, medical, or hazardous material emergency at the proposed power plant site. If on-site systems do not follow established codes and industry standards, staff recommends additional measures. Staff reviews and evaluates the local fire department capabilities in each area, the response time, and interviews the local fire officials to determine if they feel adequately trained, manned, and equipped to respond to the needs of a power plant. Staff then determines if the presence of the power plant would cause a significant impact on a local fire department. If it does, staff will recommend that the applicant mitigate this impact by providing increased resources to the fire department.

DIRECT/INDIRECT IMPACTS AND MITIGATION

Worker Safety

Industrial environments are potentially dangerous during construction and operation of facilities. Workers at the proposed project will be exposed to loud noises, moving equipment, trenches, and confined space entry and egress problems. The workers may experience falls, trips, burns, lacerations, and numerous other injuries. They have the potential to be exposed to falling equipment or structures, chemical spills, hazardous waste, fires, explosions, and electrical sparks and electrocution. It is important for the SVEP to have well-defined policies and procedures, training, and hazard recognition and control at their facility to minimize such hazards and protect workers. If the facility complies with all LORS, workers will be adequately protected from health and safety hazards.

A Safety and Health Program will be prepared by the applicant to minimize worker hazards during construction and operation. Staff uses the phrase “Safety and Health Program” to refer to the measures that will be taken to ensure compliance with the applicable LORS during the construction and operational phases of the project.

Construction Safety and Health Program

The SVEP encompasses construction and operation of a natural gas fired-facility. Workers will be exposed to hazards typical of construction and operation of a gas-fired simple cycle facility.

Construction Safety Orders are published at 8 CCR sections 1502, et seq. These requirements are promulgated by Cal/OSHA and are applicable to the construction phase of the project. The Construction Safety and Health Program will include the following:

- Construction Injury and Illness Prevention Program (8 CCR § 1509)
- Construction Fire Prevention Plan (8 CCR § 1920)
- Personal Protective Equipment Program (8 CCR §§ 1514 - 1522)

- Emergency Action Program and Plan

Additional programs under General Industry Safety Orders (8 CCR §§ 3200 to 6184), Electrical Safety Orders (8 CCR §§2299 to 2974) and Unfired Pressure Vessel Safety Orders (8 CCR §§ 450 to 544) will include:

- Electrical Safety Program
- Motor Vehicle and Heavy Equipment Safety Program;
- Forklift Operation Program;
- Excavation/Trenching Program;
- Fall Protection Program;
- Scaffolding/Ladder Safety Program;
- Articulating Boom Platforms Program;
- Crane and Material Handling Program;
- Housekeeping and Material Handling and Storage Program;
- Respiratory Protection Program;
- Employee Exposure Monitoring Program;
- Hand and Portable Power Tool Safety Program;
- Hearing Conservation Program;
- Back Injury Prevention Program;
- Hazard Communication Program;
- Heat and Cold Stress Monitoring and Control Program;
- Pressure Vessel and Pipeline Safety Program;
- Hazardous Waste Program;
- Hot work Safety Program;
- Permit-Required Confined Space Entry Program; and
- Demolition Procedure (if applicable).

The AFC includes adequate outlines of each of the above programs (VSE 2005b, Section 8.16.2.3). Prior to the start of construction of the SVEP, detailed programs and plans will be provided pursuant to the Condition of Certification **WORKER SAFETY-1**.

Operations and Maintenance Safety and Health Program

Prior to the start of operations at the SVEP, the Operations and Maintenance Safety and Health Program will be prepared. This operational safety program will include the following programs and plans:

- Injury and Illness Prevention Program (8 CCR § 3203);
- Fire Prevention Program (8 CCR § 3221);

- Personal Protective Equipment Program (8 CCR §§ 3401 to 3411); and
- Emergency Action Plan (8 CCR § 3220).

In addition, the requirements under General Industry Safety Orders (8 CCR §§ 3200 to 6184), Electrical Safety Orders (8 CCR §§2299 to 2974) and Unfired Pressure Vessel Safety Orders (8 CCR §§ 450 to 544) will be applicable to the project. Written safety programs for the SVEP, which the applicant will develop, will ensure compliance with the above-mentioned requirements.

The AFC includes adequate outlines of the Injury and Illness Prevention Program, Emergency Action Plan, Fire Prevention Program, and Personal Protective Equipment Program (VSE 2005b, Section 8.16.2.3). Prior to operation of the SVEP, all detailed programs and plans will be provided pursuant to Condition of Certification **WORKER SAFETY-2**.

Safety and Health Program Elements

As mentioned above, the applicant provided the proposed outlines for both a Construction Safety and Health Program and an Operations Safety and Health Program. The measures in these plans are derived from applicable sections of state and federal law. The major items required in both Safety and Health Programs are as follows:

Injury and Illness Prevention Program (IIPP)

The IIPP will include the following components as presented in the AFC (VSE 2005b):

- identity of person(s) with authority and responsibility for implementing the program;
- establish safety and health policy of the plan;
- define work rules and safe work practices for construction activities;
- system for ensuring that employees comply with safe and healthy work practices;
- system for facilitating employer-employee communications;
- procedures for identifying and evaluating workplace hazards and developing necessary program(s);
- methods for correcting unhealthy/unsafe conditions in a timely manner;
- determine and establish training and instruction requirements and programs; and
- specify safety procedures.

Fire Prevention Plan

California Code of Regulations requires an Operations Fire Prevention Plan (8 CCR § 3221). The AFC outlines a proposed Fire Prevention Plan which is acceptable to staff (VSE 2005b, Section 8.16.2.3.1). The plan will include the following topics:

- determine general program requirements;
- determine fire hazard inventory, including ignition sources and mitigation;

- develop good housekeeping practices and proper materials storage;
- establish employee alarm and/or communication system(s);
- provide portable fire extinguishers at appropriate site locations;
- locate fixed fire fighting equipment in suitable areas;
- specify fire control requirements and procedures;
- establish proper flammable and combustible liquid storage facilities;
- identify the location and use of flammable and combustible liquids;
- provide proper dispensing and determine disposal requirements for flammable liquids;
- establish and determine training and instruction requirements and programs; and
- identify personnel to contact for information on plan contents.

Staff proposes that the applicant submit a final Fire Prevention Plan to the Energy Commission Compliance Project Manager (CPM) for review and approval and to the SVEP for review and comment to satisfy proposed Conditions of Certification **WORKER SAFETY-1** and **WORKER SAFETY-2**.

Personal Protective Equipment Program

California regulations require Personal Protective Equipment (PPE) and first aid supplies whenever hazards are present that due to process, environment, chemicals or mechanical irritants, can cause injury or impair bodily function as a result of absorption, inhalation or physical contact (8 CCR sections 3380 to 3400). The SVEP operational environment will require PPE.

All safety equipment must meet National Institute of Safety and Health (NIOSH) or American National Standards Institute (ANSI) standards and will carry markings, numbers, or certificates of approval. Respirators must meet NIOSH and Cal/OSHA standards. Each employee must be provided with the following information pertaining to the protective clothing and equipment:

- proper use, maintenance, and storage;
- when the protective clothing and equipment are to be used;
- benefits and limitations; and
- when and how the protective clothing and equipment are to be replaced.

The PPE Program ensures that employers comply with the applicable requirements for PPE and provides employees with the information and training necessary to protect them from potential workplace hazards.

Emergency Action Plan

California regulations require an Emergency Action Plan (8 CCR § 3220). The AFC contains a satisfactory outline for an emergency action plan (VSE 2005b, Section 8.16.2.3).

The outline lists the following features:

- establish emergency escape procedures and emergency escape route for the facility;
- determine procedures to be followed by employees who remain to operate critical plant operations before they evacuate;
- provide procedures to account for all employees and visitors after emergency evacuation of the plant has been completed;
- specify rescue and medical duties for assigned employees;
- identify fire and emergency reporting procedures to regulatory agencies;
- develop alarm and communication system for the facility;
- establish a list of personnel to contact for information on the plan contents;
- provide emergency response procedures for ammonia release; and
- determine and establish training and instruction requirements and programs.

Written Safety Program

In addition to the specific plans listed above, additional LORS apply to the project, called "safe work practices." Both the Construction and the Operations Safety Programs will address safe work practices under a variety of programs. The components of these programs include, but are not limited to, the programs found under the heading Construction Safety and Health Program of this staff assessment:

- In addition, the project owner would be required to provide personnel protective equipment and exposure monitoring for workers who are involved in activities on sites where contaminated soil and/or contaminated groundwater exist as per staff's proposed Conditions of Certification **WORKER SAFETY-1** and**-2**.

These proposed Conditions of Certification would ensure that workers are properly protected from any hazardous wastes presently at the site.

Safety Training Programs

Employees will be trained in the safe work practices described in the above-referenced safety programs.

Additional Mitigation Measures

Protecting construction workers from injury and disease is among the greatest challenges in occupational safety and health. The following facts are reported by the National Institute for Occupational Safety and Health (NIOSH):

- More than 7 million persons work in the construction industry, representing 6% of the labor force. Approximately 1.5 million of these workers are self-employed.
- Of approximately 600,000 construction companies, 90% employ fewer than 20 workers. Few have formal safety and health programs.

- Falls caused 3,859 construction worker fatalities (25.6%) between 1980 and 1993.
- From 1980-1993, an average of 1,079 construction workers were killed on the job each year, more fatal injuries than in any other industry.
- Fifteen percent of workers' compensation costs are spent on construction injuries.
- Assuring safety and health in construction is complex, involving short-term work sites, changing hazards, and multiple operations and crews working in close proximity.
- In 1990, Congress directed NIOSH to undertake research and training to reduce diseases and injuries among construction workers in the United States. Under this mandate, NIOSH funds both intramural and extramural research projects.

The hazards associated with the construction industry are thus well documented. These hazards increase in complexity in the multi-employer worksites typical of large complex industrial type projects such as the construction of gas-fired power plants. In order to reduce and/or eliminate these hazards, it has become standard industry practice to hire a Construction Safety Supervisor to ensure a safe and healthful environment for all personnel. The need for such oversight has also been demonstrated by the results of audits of power plants under construction conducted by the staff. The Federal Occupational Safety and Health Administration (OSHA) has also entered into strategic alliances with several professional and trade organizations to promote and recognize safety professionals trained as Construction Safety Supervisors, Construction Health and Safety Officers, and other professional designations. The goals of these partnerships are to encourage construction subcontractors to improve their safety and health performance; to assist them in striving for the elimination of the four hazards (falls, electrical, caught in/between and struck-by hazards), which account for the majority of fatalities and injuries in this industry and have been the focus of targeted OSHA inspections; to prevent serious accidents in the construction industry through implementation of enhanced safety and health programs and increased employee training; and to recognize those subcontractors with exemplary safety and health programs.

To date, there are no OSHA or Cal-OSHA requirements that an employer hire or provide for a Construction Safety Officer. OSHA and Cal-OSHA regulations do, however, require that safety be ensured by employers by assigning responsibility for oversight of site safety to a “Competent Person”. A “Competent Person” is usually defined by OSHA as an individual who, by way of training and/or experience, is knowledgeable of standards, is capable of identifying workplace hazards relating to the specific operations, is designated by the employer, and has authority to take appropriate action. Therefore, in order to meet the intent of the OSHA standard to provide for a safe workplace during power plant construction, staff proposes Condition of Certification **WORKER SAFETY-3** which would require the applicant/project owner to designate and provide for a power plant site Construction Safety Supervisor.

Accidents and fires, as well as worker injury and fatality have occurred at Energy Commission-certified power plants in the recent past due to owner failure in recognizing and controlling hazards and adequately supervising compliance with occupational safety and health regulations. Safety problems have been documented by Energy

Commission staff in safety audits conducted in 2005 at several power plants under construction. The findings of the audit staff include, but are not limited to, such safety oversights as:

- Lack of posted confined space warning placards/signs;
- Confusing and/or inadequate electrical and machinery lockout/tagout permitting and procedures;
- Confusing and/or inappropriate procedures for handing over lockout/tagout and confined space permits from the construction team to commissioning team and then to operations;
- Dangerous placement of hydraulic elevated platforms under each other;
- Inappropriate placement of fire extinguishers near hotwork;
- Dangerous placement of numerous power cords in standing water on the site thus increasing the risk of electrocution; and
- Inappropriate and unsecure placement of above-ground natural gas pipelines inside the facility but too close to the perimeter fence.
- Lack of adequate employee or contractor written training programs addressing proper procedures to follow in the event of finding suspicious packages or objects either on- or off-site.

In order to reduce and/or eliminate these hazards, staff has determined that it is necessary recommend that a safety professional monitor on-site compliance with Cal-OSHA regulations and periodically audit safety compliance during construction, commissioning, and the hand-over to operational status. These requirements are outlined in Condition of Certification **WORKER SAFETY-4**. A monitor, hired by the project owner yet reporting to the CBO and CPM, will serve as an “extra set of eyes” to ensure that safety procedures and practices are fully implemented at all power plants certified by the Energy Commission.

Fire Hazards

During construction and operation of the proposed SVEP there is the potential for both small fires and major structural fires. Electrical sparks, combustion of fuel oil, natural gas, hydraulic fluid, mineral oil, insulating fluid at the power plant switchyard or flammable liquids, explosions, and over-heated equipment, may cause small fires. Major structural fires are unlikely to develop at power plants due to construction with non-flammable materials and use of automated fire protection systems. Fires and explosions of natural gas or other flammable gasses or liquids are rare. Compliance with all LORS will be adequate to assure protection from all fire hazards.

The project will rely on both onsite fire protection systems and local fire protection services. The onsite fire protection system provides the first line of defense for small fires. In the event of a major fire, fire support services, including trained firefighters and equipment for a sustained response, would be provided by the Riverside County Fire Department (VSE 2005b, Section 8.16.2.3).

Construction

During construction, portable fire extinguishers will be located throughout the site, and safety procedures and training will be implemented. In addition, Riverside County Fire Department will provide fire protection backup for larger fires that can not be extinguished using the portable suppression equipment.

Operation

The information in the AFC indicates that the project intends to meet the fire protection and suppression requirements of the California Fire Code, all applicable recommended NFPA standards, and all Cal-OSHA requirements. Fire suppression elements in the proposed plant will include both fixed and portable fire extinguishing systems. The fire water will be supplied through a proposed 10-inch-diameter pipeline connected to an existing reclaimed water supply line adjacent to the site owned by Eastern Municipal Water District. The fire water system will be sized to provide water at a rate of up to 2,000 gpm for up to 2 hours in accordance with NFPA guidelines (VSE 2005b, Sections 1.1 and 2.1.12).

A CO_2 fire protection system will protect the combustion turbine generators and accessory equipment. The system will have fire detection sensors that will trigger alarms, turn off ventilation, close ventilation openings, and automatically release the CO_2 (VSE 2005b, Section 2.2.2.1) in the event of fire.

In addition to the fixed fire protection system, smoke detectors, flame detectors, temperature detectors, and appropriate class of service portable extinguishers and fire hydrants will be located throughout the facility at code-approved intervals. These systems are required by NFPA and the UFC standards. Staff has determined that they these requirements will ensure adequate fire protection.

The applicant would be required by **Worker Safety-1** and**-2** to provide the final Fire Protection and Prevention Program to staff and to the Riverside County Fire Department prior to construction and operation of the project, to confirm the adequacy of the proposed fire protection measures.

Emergency Medical Response

In a state-wide survey was conducted by staff to determine the frequency of emergency medical response (EMS) and off-site fire-fighter response for natural gas-fired power plants in California. The purpose of the analysis was to determine what impact, if any, power plants may have on local emergency services. Staff has concluded that incidents at power plants that require fire or EMS response are infrequent and represent an insignificant impact on the local fire departments, except for rare instances where a rural fire department has mostly volunteer fire-fighting staff. However, staff has determined that the potential for both work-related and non-work related heart attacks exists at power plants. In fact, staff's research on the frequency of EMS response to gas-fired power plants shows that many of the responses for cardiac emergencies involved non-work related incidences, including visitors. The need for prompt response within a few minutes is well documented in the medical literature. Staff believes that the quickest medical intervention can only be achieved with the use of an on-site defibrillator; the

response from an off-site provider would take longer regardless of the provider location. This fact is also well documented and serves as the basis for many private and public locations (e.g., airports, factories, government buildings) maintaining on-site cardiac defibrillation devices. Therefore, staff concludes that with the advent of modern cost-effective cardiac defibrillation devices, it is proper in a power plant environment to maintain such a devise on-site in order to convert cardiac arrythmias resulting from industrial accidents or other non-work related causes. Therefore, an additional COC (**WORKER SAFETY-5**) is proposed which would require that a portable automatic cardiac defibrillator be located on site.

CUMULATIVE IMPACTS AND MITIGATION

Staff reviewed the potential for the construction and operation of SVEP combined with existing industrial facilities and expected new facilities to result in impacts on the fire and emergency service capabilities of the RCFD, and determined that cumulative impacts were insignificant. Given the industrial area where the project is proposed to be built, and the lack of unique fire hazards associated with a modern gas-fired power plant, staff concludes that this project will not have any significant incremental burden on the department's ability to respond to a fire or medical emergency.

CONCLUSIONS

Staff concluded that if the applicant for the proposed SVEP provides a Project Construction Safety and Health Program and a Project Operations and Maintenance Safety and Health Program as required by Conditions of Certification **WORKER SAFETY -1**, and **-2**; and fulfils the requirements of **WORKER SAFETY-3** through**-5**, the project would incorporate sufficient measures to ensure adequate levels of industrial safety and comply with applicable LORS. Staff also concludes that the proposed project would not have significant impacts on local fire protection services.

PROPOSED CONDITIONS OF CERTIFICATION

WORKER SAFETY-1 The project owner shall submit to the Compliance Project Manager (CPM) a copy of the Project Construction Safety and Health Program containing the following:

- A Construction Personal Protective Equipment Program;
- A Construction Exposure Monitoring Program;
- A Construction Injury and Illness Prevention Program;
- A Construction Emergency Action Plan; and
- A Construction Fire Prevention Plan.

The Personal Protective Equipment Program, the Exposure Monitoring Program, and the Injury and Illness Prevention Program shall be submitted to the CPM for review and approval concerning compliance of the program with all applicable Safety Orders. The Construction Emergency Action Plan and the Fire Prevention

Plan shall be submitted to the Riverside County Fire Department for review and comment prior to submittal to the CPM for approval.

Verification: At least 30 days prior to the start of construction, the project owner shall submit to the CPM for review and approval a copy of the Project Construction Safety and Health Program. The project owner shall provide a copy of a letter to the CPM from the Riverside County Fire Department stating the Fire Department's comments on the Construction Fire Prevention Plan and Emergency Action Plan.

WORKER SAFETY-2 The project owner shall submit to the CPM a copy of the Project Operations and Maintenance Safety and Health Program containing the following:

- An Operation Injury and Illness Prevention Plan;
- An Emergency Action Plan;
- Hazardous Materials Management Program;
- Fire Prevention Program (8 CCR § 3221); and;
- Personal Protective Equipment Program (8 CCR §§ 3401-3411).

The Operation Injury and Illness Prevention Plan, Emergency Action Plan, and Personal Protective Equipment Program shall be submitted to the CPM for review and comment concerning compliance of the program with all applicable Safety Orders. The Operation Fire Prevention Plan and the Emergency Action Plan shall also be submitted to the Riverside County Fire Department for review and comment.

Verification: At least 30 days prior to the start of first-fire or commissioning, the project owner shall submit to the CPM for approval a copy of the Project Operations and Maintenance Safety and Health Program. The project owner shall provide a copy of a letter to the CPM from the Riverside County Fire Department stating the Fire Department's comments on the Operations Fire Prevention Plan and Emergency Action Plan.

WORKER SAFETY-3 The project owner shall provide a site Construction Safety Supervisor (CSS) who, by way of training and/or experience, is knowledgeable of power plant construction activities and relevant laws, ordinances, regulations, and standards, is capable of identifying workplace hazards relating to the construction activities, and has authority to take appropriate action to assure compliance and mitigate hazards. The CSS shall:

- Have over-all authority for coordination and implementation of all occupational safety and health practices, policies, and programs;
- Assure that the safety program for the project complies with Cal/OSHA & federal regulations related to power plant projects;
- Assure that all construction and commissioning workers and supervisors receive adequate safety training;

- Complete accident and safety-related incident investigations, emergency response reports for injuries, and inform the CPM of safety-related incidents; and
- Assure that all the plans identified in Worker Safety 1 and 2 are implemented.

Verification: At least 30 days prior to the start of site mobilization, the project owner shall submit to the CPM the name and contact information for the Construction Safety Supervisor (CSS). The contact information of any replacement (CSS) shall be submitted to the CPM within one business day.

The CSS shall submit in the Monthly Compliance Report a monthly safety inspection report to include:

- Record of all employees trained for that month (all records shall be kept on site for the duration of the project);
- Summary report of safety management actions and safety-related incidents that occurred during the month;
- Report of any continuing or unresolved situations and incidents that may pose danger to life or health; and
- Report of accidents and injuries that occurred during the month.

WORKER SAFETY-4 The project owner shall make payments to the Chief Building Official (CBO) for the services of a Safety Monitor based upon a reasonable fee schedule to be negotiated between the project owner and the CBO. Those services shall be in addition to other work performed by the CBO. The Safety Monitor shall be selected by and report directly to the CBO, and will be responsible for verifying that the Construction Safety Supervisor, as required in **WORKER SAFETY-3**, implements all appropriate Cal/OSHA and Commission safety requirements. The Safety Monitor shall conduct on-site (including linear facilities) safety inspections at intervals necessary to fulfill those responsibilities.

Verification: Prior to the start of construction, the project owner shall provide proof of its agreement to fund the Safety Monitor services to the CPM for review and approval.

WORKER SAFETY-5 The project owner shall ensure that a portable automatic cardiac defibrillator is located on site during construction and operations and shall implement a program to ensure that workers are properly trained in its use and that the equipment is properly maintained and functioning at all times.

Verification: At least 30 days prior to the start of site mobilization the project owner shall submit to the CPM proof that a portable automatic cardiac defibrillator exists on site and a copy of the training and maintenance program for review and approval.

REFERENCES

California Fire Code 1998. Published by the International Fire Code Institute comprised of the International Conference of Building Officials, the Western Fire Chiefs Association, and the California Building Standards Commission. Whittier, Ca.

Uniform Fire Code 1997, Vol. 1. Published by the International Fire Code Institute comprised of the International Conference of Building Officials and the Western Fire Chiefs Association, Whittier, Ca.

VSE (Valle del Sol Energy, LLC). 2005b – Application for Certification for Sun Valley Energy Project, Volumes 1 and 2. Submitted to the California Energy Commission, December 1, 2005.

USOSHA (United States Occupational Safety and Health Administration). 1993. Process Safety Management / Process Safety Management Guidelines For Compliance. U.S. Department of Labor, Washington, DC.

ENGINEERING ASSESSMENT

FACILITY DESIGN

Shahab Khoshmashrab

SUMMARY OF CONCLUSIONS

Staff concludes that the design, construction and eventual closure of the project and its linear facilities would likely comply with applicable engineering laws, ordinances, regulations and standards. The proposed Conditions of Certification, below, would ensure compliance with these laws, ordinances, regulations and standards.

INTRODUCTION

Facility Design encompasses the civil, structural, mechanical and electrical engineering design of the project. The purpose of the Facility Design analysis is to:

- Verify that the laws, ordinances, regulations and standards (LORS) applicable to the engineering design and construction of the project have been identified;
- Verify that the project and ancillary facilities have been described in sufficient detail, including proposed design criteria and analysis methods, to provide reasonable assurance that the project can be designed and constructed in accordance with all applicable engineering LORS, and in a manner that assures public health and safety;
- Determine whether special design features should be considered during final design to deal with conditions unique to the site which could influence public health and safety; and
- Describe the design review and construction inspection process and establish Conditions of Certification that will be used to monitor and ensure compliance with the engineering LORS and any special design requirements.

Subjects discussed in this analysis include:

- Identification of the engineering LORS applicable to facility design;
- Evaluation of the applicant's proposed design criteria, including the identification of those criteria that are essential to ensuring public health and safety;
- Proposed modifications and additions to the Application for Certification (AFC) that are necessary to comply with applicable engineering LORS; and
- Conditions of Certification proposed by staff to ensure that the project will be designed and constructed to assure public health and safety and comply with all applicable engineering LORS.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

Lists of LORS applicable to each engineering discipline (civil, structural, mechanical and electrical) are described in the AFC (VSE 2005b, Appendices 10A through 10G). The key LORS are listed in **Facility Design Table 1** below:

Facility Design Table 1
Key Engineering Laws, Ordinances, Regulations and Standards (LORS)

Applicable LORS	Description
Federal	Title 29 Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Standards
State	2001 California Building Standards Code (CBSC) (also known as Title 24, California Code of Regulations)
Local	Riverside County, Regulations and Ordinances
General	American National Standards Institute (ANSI) American Society of Mechanical Engineers (ASME) American Welding Society (AWS) American Society for Testing and Materials (ASTM)

SETTING

The Sun Valley Energy Project (SVEP) will be built on an approximately 20-acre site, located near Romoland in unincorporated Riverside County. The site will lie in seismic zone 4. For more information on the site and related project description, please see the **Project Description** section of this document. Additional engineering design details are contained in the Application for Certification (AFC), in Appendices 10A through 10G (VSE 2005b).

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

The purpose of this analysis is to ensure that the project is built to the applicable engineering codes in order to ensure public health and life safety. The analysis verifies that the applicable engineering LORS have been identified and that the project and ancillary facilities have been described in sufficient detail. It also evaluates the applicant's proposed design criteria, describes the design review and construction inspection process, and establishes Conditions of Certification to monitor and ensure compliance with the engineering LORS and any special design requirements. These conditions allow the Energy Commission Compliance Project Manager (CPM) and the applicant to adopt a compliance monitoring scheme that will verify compliance with these LORS.

SITE PREPARATION AND DEVELOPMENT

Staff has evaluated the proposed design criteria for grading, flood protection, erosion control, site drainage, and site access. Staff has assessed the criteria for designing and constructing linear support facilities such as natural gas and electric transmission interconnections. The applicant proposes to use accepted industry standards (see VSE 2005b, Appendices 10A through 10G for a representative list of applicable industry standards), design practices and construction methods in preparing and developing the site. Staff concludes that the project, including its linear facilities, would most likely

comply with all applicable site preparation LORS, and proposes Conditions of Certification (see below and the **Geology and Paleontology** section of this document) to ensure compliance.

MAJOR STRUCTURES, SYSTEMS AND EQUIPMENT

Major structures, systems and equipment are defined as those structures and associated components or equipment that are necessary for power production and are costly or time consuming to repair or replace, that are used for the storage, containment, or handling of hazardous or toxic materials, or may become potential health and safety hazards if not constructed according to the applicable engineering LORS. Major structures and equipment will be identified through compliance with proposed Condition of Certification **GEN-2** (below).

The AFC contains lists of the civil, structural, mechanical and electrical design criteria that demonstrate the likelihood of compliance with applicable engineering LORS, and that staff believes are essential to ensuring that the project is designed in a manner that protects public health and safety.

The project shall be designed and constructed to the 2001 edition of the California Building Standards Code (CBSC) (also known as Title 24, California Code of Regulations), which encompasses the California Building Code (CBC), California Building Standards Administrative Code, California Electrical Code, California Mechanical Code, California Plumbing Code, California Energy Code, California Fire Code, California Code for Building Conservation, California Reference Standards Code, and other applicable codes and standards in effect at the time design and construction of the project actually commences. In the event the initial designs are submitted to the Chief Building Official (CBO) for review and approval when the successor to the 2001 CBSC is in effect, the 2001 CBSC provisions, identified herein, shall be replaced with the applicable successor provisions.

Certain structures in a power plant may be required, under the CBC, to undergo dynamic lateral force (structural) analysis; others may be designed using the simpler static analysis procedure. In order to ensure that structures are analyzed using the appropriate lateral force procedure, staff has included Condition of Certification **STRUC-1** (below), which in part, requires review and approval by the CBO of the project owner's proposed lateral force procedures prior to the start of construction.

PROJECT QUALITY PROCEDURES

The AFC (VSE 2005b, § 2.3.5) describes a project Quality Program that will be used on the SVEP project to maximize confidence that systems and components will be designed, fabricated, stored, transported, installed and tested in accordance with the technical codes and standards appropriate for a power plant. Compliance with design requirements will be verified through an appropriate program of inspections and audits. Employment of this quality assurance/quality control (QA/QC) program would ensure that the project is actually designed, procured, fabricated, and installed as contemplated in this analysis.

COMPLIANCE MONITORING

Under Section 104.2 of the CBC, the building official is authorized and directed to enforce all the provisions of the CBC. For all energy facilities certified by the Energy Commission, the Energy Commission is the building official and has the responsibility to enforce the code. In addition, the Energy Commission has the power to render interpretations of the CBC and to adopt and enforce rules and supplemental regulations to clarify the application of the CBC's provisions.

The Energy Commission's design review and construction inspection process is developed to conform to CBC requirements and to ensure that all facility design Conditions of Certification are met. As provided by Section 104.2.2 of the CBC, the Energy Commission appoints experts to carry out the design review and construction inspections and act as delegate CBO on behalf of the Energy Commission. These delegates typically include the local building official and/or independent consultants hired to provide technical expertise not provided by the local official. The applicant, through permit fees as provided by CBC Sections 107.2 and 107.3, pays the costs of the reviews and inspections. While building permits in addition to the Energy Commission certification are not required for this project, in lieu permit fees are paid by the applicant consistent with CBC Section 107, to cover the costs of reviews and inspections.

Engineering and compliance staff will invite the local building authority, Riverside County, or a third party engineering consultant, to act as CBO for the project. When an entity has been identified to perform the duties of CBO, Energy Commission staff will complete a Memorandum of Understanding (MOU) with that entity that outlines its roles and responsibilities and those of its subcontractors and delegates.

Staff has developed proposed Conditions of Certification to ensure public health and safety and compliance with engineering design LORS. Some of these conditions address the roles, responsibilities and qualifications of the applicant's engineers responsible for the design and construction of the project (proposed Conditions of Certification **GEN-1** through **GEN-8**). Engineers responsible for the design of the civil, structural, mechanical and electrical portions of the project are required to be registered in California, and to sign and stamp each submittal of design plans, calculations and specifications submitted to the CBO. These conditions require that no element of construction subject to CBO review and approval shall proceed without prior approval from the CBO. They also require that qualified special inspectors be assigned to perform or oversee special inspections required by the applicable LORS.

While the Energy Commission and delegate CBO have the authority to allow some flexibility in scheduling construction activities, these conditions are written to require that no element of construction of permanent facilities subject to CBO review and approval, which would be difficult to reverse or correct, may proceed without prior approval of plans by the CBO. Those elements of construction that are not difficult to reverse are allowed to proceed without approval of the plans. The applicant shall bear the responsibility to fully modify those elements of construction to comply with all design changes that result from the CBO's subsequent plan review and approval process.

FACILITY CLOSURE

The removal of a facility from service, or decommissioning, as a result of the project reaching the end of its useful life, may range from “mothballing” to removal of all equipment and appurtenant facilities and restoration of the site. Future conditions that may affect the decommissioning decision are largely unknown at this time.

In order to assure that decommissioning of the facility will be completed in a manner that is environmentally sound, safe and will protect public health and safety, the applicant shall submit a decommissioning plan to the Energy Commission for review and approval prior to the commencement of decommissioning. The plan shall include a discussion of:

- proposed decommissioning activities for the project and all appurtenant facilities constructed as part of the project;
- all applicable LORS, local/regional plans and the conformance of the proposed decommissioning activities to the applicable LORS and local/regional plans;
- the activities necessary to restore the site if the plan requires removal of all equipment and appurtenant facilities; and
- decommissioning alternatives, other than complete site restoration.

The above requirements should serve as adequate protection, even in the unlikely event of project abandonment. Staff has proposed general conditions (see **General Conditions**) to ensure that these measures are included in the Facility Closure plan.

CONCLUSIONS

1. The laws, ordinances, regulations and standards (LORS) identified in the AFC and supporting documents are those applicable to the project.

2. Staff has evaluated the proposed engineering LORS, design criteria and design methods in the record, and concludes that the design, construction and eventual closure of the project are likely to comply with applicable engineering LORS.

3. The Conditions of Certification proposed will ensure that the proposed facilities are designed and constructed in accordance with applicable engineering LORS. This will occur through the use of design review, plan checking and field inspections, which are to be performed by the CBO or other Energy Commission delegate. Staff will audit the CBO to ensure satisfactory performance.

4. Whereas future conditions that may affect decommissioning are largely unknown at this time, it can reasonably be concluded that if the project owner submits a decommissioning plan as required in the **General Conditions** portion of this document prior to the commencement of decommissioning, the decommissioning procedure is likely to occur in compliance with all applicable engineering LORS.

Energy Commission staff recommends that:

1. The Conditions of Certification proposed herein be adopted to ensure that the project is designed and constructed to assure public health and safety, and to ensure compliance with all applicable engineering LORS;

2. The project be designed and built to the 2001 CBSC (or successor standard, if such is in effect when the initial project engineering designs are submitted for review); and

3. The CBO shall review the final designs, conduct plan checking and perform field inspections during construction. Energy Commission staff shall audit and monitor the CBO to ensure satisfactory performance.

CONDITIONS OF CERTIFICATION

GEN-1 The project owner shall design, construct and inspect the project in accordance with the 2001 California Building Standards Code (CBSC) (also known as Title 24, California Code of Regulations), which encompasses the California Building Code (CBC), California Building Standards Administrative Code, California Electrical Code, California Mechanical Code, California Plumbing Code, California Energy Code, California Fire Code, California Code for Building Conservation, California Reference Standards Code, and all other applicable engineering LORS in effect at the time initial design plans are submitted to the CBO for review and approval. (The CBSC in effect is that edition that has been adopted by the California Building Standards Commission and published at least 180 days previously.) The project owner shall insure that all the provisions of the above applicable codes be enforced during any construction, addition, alteration, moving, demolition, repair, or maintenance of the completed facility [2001 CBC, Section 101.3, Scope]. All transmission facilities (lines, switchyards, switching stations and substations) are handled in Conditions of Certification in the **Transmission System Engineering** section of this document.

In the event that the initial engineering designs are submitted to the CBO when a successor to the 2001 CBSC is in effect, the 2001 CBSC provisions identified herein shall be replaced with the applicable successor provisions. Where, in any specific case, different sections of the code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern.

The project owner shall insure that all contracts with contractors, subcontractors and suppliers shall clearly specify that all work performed and materials supplied on this project comply with the codes listed above.

Verification: Within 30 days after receipt of the Certificate of Occupancy, the project owner shall submit to the Compliance Project Manager (CPM) a statement of verification, signed by the responsible design engineer, attesting that all designs,

construction, installation and inspection requirements of the applicable LORS and the Energy Commission's Decision have been met in the area of facility design. The project owner shall provide the CPM a copy of the Certificate of Occupancy within 30 days of receipt from the CBO [2001 CBC, Section 109 – Certificate of Occupancy].

Once the Certificate of Occupancy has been issued, the project owner shall inform the CPM at least 30 days prior to any construction, addition, alteration, moving, demolition, repair, or maintenance to be performed on any portion(s) of the completed facility which may require CBO approval for the purpose of complying with the above stated codes. The CPM will then determine the necessity of CBO approval on the work to be performed.

GEN-2 Prior to submittal of the initial engineering designs for CBO review, the project owner shall furnish to the CPM and to the CBO a schedule of facility design submittals, a Master Drawing List and a Master Specifications List. The schedule shall contain a list of proposed submittal packages of designs, calculations and specifications for major structures and equipment. To facilitate audits by Energy Commission staff, the project owner shall provide specific packages to the CPM when requested.

Verification: At least 60 days (or project owner and CBO approved alternative timeframe) prior to the start of rough grading, the project owner shall submit to the CBO and to the CPM the schedule, the Master Drawing List and the Master Specifications List of documents to be submitted to the CBO for review and approval. These documents shall be the pertinent design documents for the major structures and equipment listed in **Facility Design Table 2** below. Major structures and equipment shall be added to or deleted from the table only with CPM approval. The project owner shall provide schedule updates in the Monthly Compliance Report.

Facility Design Table 2
Major Structures and Equipment List

Equipment/System	Quantity (Plant)
Combustion Turbine (CT) Foundation and Connections	5
CT Generator Foundation and Connections	5
SCR Stack Structure, Foundation and Connections	5
CT Main Transformer Foundation and Connections	5
CT Power Control Module Structure, Foundation and Connections	5
CT Inter Cooler Structure, Foundation and Connections	5
CT Cooling Pump Skid Foundation and Connections	5
CT Mechanical Auxiliary Skid Foundation and Connections	5
CT Inlet Air Filter House Structure, Foundation and Connections	5
CT CO/SCR Module Structure, Foundation and Connections	5
CEMS Enclosure Structure, Foundation and Connections	5
Ammonia Dilution Air Skid Foundation and Connections	5
Ammonia Storage Tank Foundation and Connections	1

Equipment/System	Quantity (Plant)
Ammonia Forwarding Pump Skid Foundation and Connections	1
Gas Filter/Separator Skid Foundation and Connections	5
Purge Air Fans Foundation and Connections	5
Closed Cooling Water Heat Exchanger Foundation and Connections	4
Fuel Gas Scrubber Foundation and Connections	2
Recycled Chlorination Tank Foundation and Connections	1
Auxiliary Transformer Foundation and Connections	9
Fire Wall Structure, Foundation and Connections	5
Cooling Tower Structure, Foundation and Connections	1
Cooling Tower Circulating Pump Foundation and Connections	3
Recycled Water Storage Tank Foundation and Connections	1
Warehouse Building Structure, Foundation and Connections	1
Water Treatment/ Mechanical Covered Structure, Foundation and Connections	1
Sulfuric Acid Storage Tank Foundation and Connections	1
Treated Water Storage Tank Foundation and Connections	1
Fire Water Tank Foundation and Connections	1
Demineralized Water Storage Tank Foundation and Connections	1
Gas Compressor/Air Compressor/Electrical Building Structure, Foundation and Connections	1
Cooling Tower Chemical Feed Building Structure, Foundation and Connections	1
High Side Breaker Foundation and Connections	3
Dead End Structure Foundation and Connections	2
Low Side Breaker Foundation and Connections	2
Diesel Fire Pump Skid Foundation and Connections	1
Maintenance/Shop Building Structure, Foundation and Connections	1
Control/Administration/Switchgear Building Structure Foundation and Connections	1
Fuel Gas Filter/Separator Foundation and Connections	3
Storm Water Retention Pond	1
Drainage Systems (including sanitary drain and waste)	1 Lot
High Pressure and Large Diameter Piping and Pipe Racks	1 Lot
HVAC and Refrigeration Systems	1 Lot
Temperature Control and Ventilation Systems (including water and sewer connections)	1 Lot
Building Energy Conservation Systems	1 Lot
Switchyard, Buses and Towers	1 Lot
Electrical Duct Banks	1 Lot

GEN-3 The project owner shall make payments to the CBO for design review, plan check and construction inspection based upon a reasonable fee schedule to be negotiated between the project owner and the CBO. These fees may be consistent with the fees listed in the 2001 CBC [Chapter 1, Section 107 and

Table 1-A, Building Permit Fees; Appendix Chapter 33, Section 3310 and Table A-33-A, Grading Plan Review Fees; and Table A-33-B, Grading Permit Fees], adjusted for inflation and other appropriate adjustments; may be based on the value of the facilities reviewed; may be based on hourly rates; or may be as otherwise agreed by the project owner and the CBO.

Verification: The project owner shall make the required payments to the CBO in accordance with the agreement between the project owner and the CBO. The project owner shall send a copy of the CBO's receipt of payment to the CPM in the next Monthly Compliance Report indicating that the applicable fees have been paid.

GEN-4 Prior to the start of rough grading, the project owner shall assign a California registered architect, structural engineer or civil engineer, as a resident engineer (RE), to be in general responsible charge of the project [Building Standards Administrative Code (Cal. Code Regs., tit. 24, § 4-209, Designation of Responsibilities)]. All transmission facilities (lines, switchyards, switching stations and substations) are handled in Conditions of Certification in the **Transmission System Engineering** section of this document.

The RE may delegate responsibility for portions of the project to other registered engineers. Registered mechanical and electrical engineers may be delegated responsibility for mechanical and electrical portions of the project, respectively. A project may be divided into parts, provided each part is clearly defined as a distinct unit. Separate assignment of general responsible charge may be made for each designated part.

The RE shall:

1. Monitor construction progress of work requiring CBO design review and inspection to ensure compliance with LORS;

2. Ensure that construction of all the facilities subject to CBO design review and inspection conforms in every material respect to the applicable LORS, these Conditions of Certification, approved plans, and specifications;

3. Prepare documents to initiate changes in the approved drawings and specifications when directed by the project owner or as required by conditions on the project;

4. Be responsible for providing the project inspectors and testing agency(ies) with complete and up-to-date set(s) of stamped drawings, plans, specifications and any other required documents;

5. Be responsible for the timely submittal of construction progress reports to the CBO from the project inspectors, the contractor, and other engineers who have been delegated responsibility for portions of the project; and

6. Be responsible for notifying the CBO of corrective action or the disposition of items noted on laboratory reports or other tests as not conforming to the approved plans and specifications.

The RE shall have the authority to halt construction and to require changes or remedial work, if the work does not conform to applicable requirements.

If the RE or the delegated engineers are reassigned or replaced, the project owner shall submit the name, qualifications and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer.

Verification: At least 30 days (or project owner and CBO approved alternative timeframe) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, the resume and registration number of the RE and any other delegated engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the RE and other delegated engineer(s) within five days of the approval.

If the RE or the delegated engineer(s) are subsequently reassigned or replaced, the project owner has five days in which to submit the resume and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer within five days of the approval.

GEN-5 Prior to the start of rough grading, the project owner shall assign at least one of each of the following California registered engineers to the project: A) a civil engineer; B) a soils engineer, or a geotechnical engineer or a civil engineer experienced and knowledgeable in the practice of soils engineering; and C) an engineering geologist. Prior to the start of construction, the project owner shall assign at least one of each of the following California registered engineers to the project: D) a design engineer, who is either a structural engineer or a civil engineer fully competent and proficient in the design of power plant structures and equipment supports; E) a mechanical engineer; and F) an electrical engineer. [California Business and Professions Code section 6704 et seq., and sections 6730, 6731 and 6736 requires state registration to practice as a civil engineer or structural engineer in California.] All transmission facilities (lines, switchyards, switching stations and substations) are handled in Conditions of Certification in the **Transmission System Engineering** section of this document.

The tasks performed by the civil, mechanical, electrical or design engineers may be divided between two or more engineers, as long as each engineer is responsible for a particular segment of the project (e.g., proposed earthwork, civil structures, power plant structures, equipment support). No segment of the project shall have more than one responsible engineer. The transmission line may be the responsibility of a separate California registered electrical engineer.

The project owner shall submit to the CBO for review and approval, the names, qualifications and registration numbers of all responsible engineers assigned to the project [2001 CBC, Section 104.2, Powers and Duties of Building Official].

If any one of the designated responsible engineers is subsequently reassigned or replaced, the project owner shall submit the name, qualifications and registration number of the newly assigned responsible engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer.

A. The civil engineer shall:

1. Review the Foundation Investigations Report, Geotechnical Report or Soils Report prepared by the soils engineer, the geotechnical engineer, or by a civil engineer experienced and knowledgeable in the practice of soils engineering;

2. Design, or be responsible for design, stamp, and sign all plans, calculations and specifications for proposed site work, civil works and related facilities requiring design review and inspection by the CBO. At a minimum, these include: grading, site preparation, excavation, compaction, construction of secondary containment, foundations, erosion and sedimentation control structures, drainage facilities, underground utilities, culverts, site access roads and sanitary sewer systems; and

3. Provide consultation to the RE during the construction phase of the project and recommend changes in the design of the civil works facilities and changes in the construction procedures.

B. The soils engineer, geotechnical engineer, or civil engineer experienced and knowledgeable in the practice of soils engineering, shall:

1. Review all the engineering geology reports;

2. Prepare the Foundation Investigations Report, Geotechnical Report or Soils Report containing field exploration reports, laboratory tests and engineering analysis detailing the nature and extent of the soils that may be susceptible to liquefaction, rapid settlement or collapse when saturated under load [2001 CBC, Appendix Chapter 33, Section 3309.5, Soils Engineering Report; Section 3309.6, Engineering Geology Report; and Chapter 18, Section 1804, Foundation Investigations];

3. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with the requirements set forth in the 2001 CBC, Appendix Chapter 33; Section 3317, Grading Inspections (depending on the site conditions, this may be the responsibility of either the soils engineer or engineering geologist or both); and

4. Recommend field changes to the civil engineer and RE.

This engineer shall be authorized to halt earthwork and to require changes if site conditions are unsafe or do not conform with predicted conditions used as a basis for design of earthwork or foundations [2001 CBC, section 104.2.4, Stop orders].

C. The engineering geologist shall:

1. Review all the engineering geology reports and prepare final soils grading report; and

2. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with the requirements set forth in the 2001 CBC, Appendix Chapter 33; Section 3317, Grading Inspections (depending on the site conditions, this may be the responsibility of either the soils engineer or engineering geologist or both).

D. The design engineer shall:

1. Be directly responsible for the design of the proposed structures and equipment supports;

2. Provide consultation to the RE during design and construction of the project;

3. Monitor construction progress to ensure compliance with engineering LORS;

4. Evaluate and recommend necessary changes in design; and

5. Prepare and sign all major building plans, specifications and calculations.

E. The mechanical engineer shall be responsible for, and sign and stamp a statement with, each mechanical submittal to the CBO, stating that the proposed final design plans, specifications, and calculations conform with all of the mechanical engineering design requirements set forth in the Energy Commission's Decision.

F. The electrical engineer shall:

1. Be responsible for the electrical design of the project; and

2. Sign and stamp electrical design drawings, plans, specifications, and calculations.

Verification: At least 30 days (or project owner and CBO approved alternative timeframe) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, resumes and registration numbers of the responsible civil engineer, soils (geotechnical) engineer and engineering geologist assigned to the project.

At least 30 days (or project owner and CBO approved alternative timeframe) prior to the start of construction, the project owner shall submit to the CBO for review and approval, resumes and registration numbers of the responsible design engineer, mechanical engineer and electrical engineer assigned to the project.

The project owner shall notify the CPM of the CBO's approvals of the responsible engineers within five days of the approval.

If the designated responsible engineer is subsequently reassigned or replaced, the project owner has five days in which to submit the resume and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer within five days of the approval.

GEN-6 Prior to the start of an activity requiring special inspection, the project owner shall assign to the project, qualified and certified special inspector(s) who shall be responsible for the special inspections required by the 2001 CBC, Chapter 17 [Section 1701, Special Inspections; Section 1701.5, Type of Work (requiring special inspection)]; and Section 106.3.5, Inspection and observation program. All transmission facilities (lines, switchyards, switching stations and substations) are handled in Conditions of Certification in the **Transmission System Engineering** section of this document.

The special inspector shall:

1. Be a qualified person who shall demonstrate competence, to the satisfaction of the CBO, for inspection of the particular type of construction requiring special or continuous inspection;

2. Observe the work assigned for conformance with the approved design drawings and specifications;

3. Furnish inspection reports to the CBO and RE. All discrepancies shall be brought to the immediate attention of the RE for correction, then, if uncorrected, to the CBO and the CPM for corrective action [2001 CBC, Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector]; and

4. Submit a final signed report to the RE, CBO, and CPM, stating whether the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved plans and specifications and the applicable provisions of the applicable edition of the CBC.

   A certified weld inspector, certified by the American Welding Society (AWS), and/or American Society of Mechanical Engineers (ASME) as applicable, shall inspect welding performed on-site requiring special inspection (including structural, piping, tanks and pressure vessels).

Verification: At least 15 days (or project owner and CBO approved alternative timeframe) prior to the start of an activity requiring special inspection, the project owner

shall submit to the CBO for review and approval, with a copy to the CPM, the name(s) and qualifications of the certified weld inspector(s), or other certified special inspector(s) assigned to the project to perform one or more of the duties set forth above. The project owner shall also submit to the CPM a copy of the CBO's approval of the qualifications of all special inspectors in the next Monthly Compliance Report.

If the special inspector is subsequently reassigned or replaced, the project owner has five days in which to submit the name and qualifications of the newly assigned special inspector to the CBO for approval. The project owner shall notify the CPM of the CBO's approval of the newly assigned inspector within five days of the approval.

GEN-7 If any discrepancy in design and/or construction is discovered in any engineering work that has undergone CBO design review and approval, the project owner shall document the discrepancy and recommend the corrective action required [2001 CBC, Chapter 1, Section 108.4, Approval Required; Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector; Appendix Chapter 33, Section 3317.7, Notification of Noncompliance]. The discrepancy documentation shall be submitted to the CBO for review and approval. The discrepancy documentation shall reference this Condition of Certification and, if appropriate, the applicable sections of the CBC and/or other LORS.

Verification: The project owner shall transmit a copy of the CBO's approval of any corrective action taken to resolve a discrepancy to the CPM in the next Monthly Compliance Report. If any corrective action is disapproved, the project owner shall advise the CPM, within five days, of the reason for disapproval and the revised corrective action to obtain CBO's approval.

GEN-8 The project owner shall obtain the CBO's final approval of all completed work that has undergone CBO design review and approval. The project owner shall request the CBO to inspect the completed structure and review the submitted documents. The project owner shall notify the CPM after obtaining the CBO's final approval. The project owner shall retain one set of approved engineering plans, specifications and calculations (including all approved changes) at the project site or at another accessible location during the operating life of the project [2001 CBC, Section 106.4.2, Retention of Plans]. Electronic copies of the approved plans, specifications, calculations and marked-up as-builts shall be provided to the CBO for retention by the CPM.

Verification: Within 15 days of the completion of any work, the project owner shall submit to the CBO, with a copy to the CPM, in the next Monthly Compliance Report, (a) a written notice that the completed work is ready for final inspection, and (b) a signed statement that the work conforms to the final approved plans. After storing final approved engineering plans, specifications and calculations as described above, the project owner shall submit to the CPM a letter stating that the above documents have been stored and indicate the storage location of such documents.

Within 90 days of the completion of construction, the project owner shall provide to the CBO three sets of electronic copies of the above documents at the project owner's

expense. These are to be provided in the form of “read only” adobe .pdf 6.0 files, with restricted printing privileges (i.e. password protected), on archive quality compact discs.

CIVIL-1 The project owner shall submit to the CBO for review and approval the following:

1. Design of the proposed drainage structures and the grading plan;

2. An erosion and sedimentation control plan;

3. Related calculations and specifications, signed and stamped by the responsible civil engineer; and

4. Soils Report, Geotechnical Report or Foundation Investigations Report required by the 2001 CBC [Appendix Chapter 33, Section 3309.5, Soils Engineering Report; Section 3309.6, Engineering Geology Report; and Chapter 18, Section 1804, Foundation Investigations].

Verification: At least 15 days (or project owner and CBO approved alternative timeframe) prior to the start of site grading the project owner shall submit the documents described above to the CBO for design review and approval. In the next Monthly Compliance Report following the CBO’s approval, the project owner shall submit a written statement certifying that the documents have been approved by the CBO.

CIVIL-2 The resident engineer shall, if appropriate, stop all earthwork and construction in the affected areas when the responsible soils engineer, geotechnical engineer, or the civil engineer experienced and knowledgeable in the practice of soils engineering identifies unforeseen adverse soil or geologic conditions. The project owner shall submit modified plans, specifications and calculations to the CBO based on these new conditions. The project owner shall obtain approval from the CBO before resuming earthwork and construction in the affected area [2001 CBC, Section 104.2.4, Stop orders].

Verification: The project owner shall notify the CPM within 24 hours, when earthwork and construction is stopped as a result of unforeseen adverse geologic/soil conditions. Within 24 hours of the CBO’s approval to resume earthwork and construction in the affected areas, the project owner shall provide to the CPM a copy of the CBO’s approval.

CIVIL-3 The project owner shall perform inspections in accordance with the 2001 CBC, Chapter 1, Section 108, Inspections; Chapter 17, Section 1701.6, Continuous and Periodic Special Inspection; and Appendix Chapter 33, Section 3317, Grading Inspection. All plant site-grading operations, for which a grading permit is required, shall be subject to inspection by the CBO.

If, in the course of inspection, it is discovered that the work is not being performed in accordance with the approved plans, the discrepancies shall be reported immediately to the resident engineer, the CBO and the CPM [2001 CBC, Appendix Chapter 33, Section 3317.7, Notification of Noncompliance]. The project owner shall prepare a written report, with copies to the CBO and

the CPM, detailing all discrepancies, non-compliance items, and the proposed corrective action.

Verification: Within five days of the discovery of any discrepancies, the resident engineer shall transmit to the CBO and the CPM a Non-Conformance Report (NCR), and the proposed corrective action for review and approval. Within five days of resolution of the NCR, the project owner shall submit the details of the corrective action to the CBO and the CPM. A list of NCRs, for the reporting month, shall also be included in the following Monthly Compliance Report.

CIVIL-4 After completion of finished grading and erosion and sedimentation control and drainage work, the project owner shall obtain the CBO's approval of the final grading plans (including final changes) for the erosion and sedimentation control work. The civil engineer shall state that the work within his/her area of responsibility was done in accordance with the final approved plans [1998 CBC, Section 3318, Completion of Work].

Verification: Within 30 days (or project owner and CBO approved alternative timeframe) of the completion of the erosion and sediment control mitigation and drainage work, the project owner shall submit to the CBO, for review and approval, the final grading plans (including final changes) and the responsible civil engineer's signed statement that the installation of the facilities and all erosion control measures were completed in accordance with the final approved combined grading plans, and that the facilities are adequate for their intended purposes, with a copy of the transmittal letter to the CPM. The project owner shall submit a copy of the CBO's approval to the CPM in the next Monthly Compliance Report.

STRUC-1 Prior to the start of any increment of construction of any major structure or component listed in **Facility Design Table 2** of Condition of Certification **GEN-2**, above, the project owner shall submit to the CBO for design review and approval the proposed lateral force procedures for project structures and the applicable designs, plans and drawings for project structures. Proposed lateral force procedures, designs, plans and drawings shall be those for the following items (from **Table 2**, above):

1. Major project structures;

2. Major foundations, equipment supports and anchorage; and

3. Large field fabricated tanks.

Construction of any structure or component shall not commence until the CBO has approved the lateral force procedures to be employed in designing that structure or component.

The project owner shall:

1. Obtain approval from the CBO of lateral force procedures proposed for project structures;

2. Obtain approval from the CBO for the final design plans, specifications, calculations, soils reports and applicable quality control procedures. If there are conflicting requirements, the more stringent shall govern (i.e., highest loads, or lowest allowable stresses shall govern). All plans, calculations and specifications for foundations that support structures shall be filed concurrently with the structure plans, calculations and specifications [2001 CBC, Section 108.4, Approval Required];

3. Submit to the CBO the required number of copies of the structural plans, specifications, calculations and other required documents of the designated major structures prior to the start of on-site fabrication and installation of each structure, equipment support, or foundation [2001 CBC, Section 106.4.2, Retention of plans; and Section 106.3.2, Submittal documents];

4. Ensure that the final plans, calculations and specifications clearly reflect the inclusion of approved criteria, assumptions and methods used to develop the design. The final designs, plans, calculations and specifications shall be signed and stamped by the responsible design engineer [2001 CBC, Section 106.3.4, Architect or Engineer of Record]; and

5. Submit to the CBO the responsible design engineer's signed statement that the final design plans conform to the applicable LORS [2001 CBC, Section 106.3.4, Architect or Engineer of Record].

Verification: At least 60 days (or project owner and CBO approved alternative timeframe) prior to the start of any increment of construction of any structure or component listed in **Facility Design Table 2** of Condition of Certification **GEN-2** above, the project owner shall submit to the CBO the above final design plans, specifications and calculations, with a copy of the transmittal letter to the CPM.

The project owner shall submit to the CPM, in the next Monthly Compliance Report a copy of a statement from the CBO that the proposed structural plans, specifications and calculations have been approved and are in compliance with the requirements set forth in the applicable engineering LORS.

STRUC-2 The project owner shall submit to the CBO the required number of sets of the following documents related to work that has undergone CBO design review and approval:

1. Concrete cylinder strength test reports (including date of testing, date sample taken, design concrete strength, tested cylinder strength, age of test, type and size of sample, location and quantity of concrete placement from which sample was taken, and mix design designation and parameters);

2. Concrete pour sign-off sheets;

3. Bolt torque inspection reports (including location of test, date, bolt size, and recorded torques);

4. Field weld inspection reports (including type of weld, location of weld, inspection of non-destructive testing (NDT) procedure and results, welder qualifications, certifications, qualified procedure description or number (ref: AWS); and

5. Reports covering other structural activities requiring special inspections shall be in accordance with the 2001 CBC, Chapter 17, Section 1701, Special Inspections; Section 1701.5, Type of Work (requiring special inspection); Section 1702, Structural Observation and Section 1703, Nondestructive Testing.

Verification: If a discrepancy is discovered in any of the above data, the project owner shall, within five days, prepare and submit an NCR describing the nature of the discrepancies and the proposed corrective action to the CBO, with a copy of the transmittal letter to the CPM [2001 CBC, Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector]. The NCR shall reference the Condition(s) of Certification and the applicable CBC chapter and section. Within five days of resolution of the NCR, the project owner shall submit a copy of the corrective action to the CBO and the CPM.

The project owner shall transmit a copy of the CBO's approval or disapproval of the corrective action to the CPM within 15 days. If disapproved, the project owner shall advise the CPM, within five days, the reason for disapproval, and the revised corrective action to obtain CBO's approval.

STRUC-3 The project owner shall submit to the CBO design changes to the final plans required by the 2001 CBC, Chapter 1, Section 106.3.2, Submittal documents and Section 106.3.3, Information on plans and specifications, including the revised drawings, specifications, calculations, and a complete description of, and supporting rationale for, the proposed changes, and shall give to the CBO prior notice of the intended filing.

Verification: On a schedule suitable to the CBO, the project owner shall notify the CBO of the intended filing of design changes, and shall submit the required number of sets of revised drawings and the required number of copies of the other above-mentioned documents to the CBO, with a copy of the transmittal letter to the CPM. The project owner shall notify the CPM, via the Monthly Compliance Report, when the CBO has approved the revised plans.

STRUC-4 Tanks and vessels containing quantities of toxic or hazardous materials exceeding amounts specified in Chapter 3, Table 3-E of the 2001 CBC shall, at a minimum, be designed to comply with the requirements of that Chapter.

Verification: At least 30 days (or project owner and CBO approved alternate timeframe) prior to the start of installation of the tanks or vessels containing the above specified quantities of toxic or hazardous materials, the project owner shall submit to the CBO for design review and approval final design plans, specifications and calculations, including a copy of the signed and stamped engineer's certification.

The project owner shall send copies of the CBO approvals of plan checks to the CPM in the following Monthly Compliance Report. The project owner shall also transmit a copy of the CBO's inspection approvals to the CPM in the Monthly Compliance Report following completion of any inspection.

MECH-1 The project owner shall submit, for CBO design review and approval, the proposed final design, specifications and calculations for each plant major piping and plumbing system listed in **Facility Design Table 2**, Condition of Certification **GEN-2**, above. Physical layout drawings and drawings not related to code compliance and life safety need not be submitted. The submittal shall also include the applicable QA/QC procedures. Upon completion of construction of any such major piping or plumbing system, the project owner shall request the CBO's inspection approval of said construction [2001 CBC, Section 106.3.2, Submittal Documents; Section 108.3, Inspection Requests; Section 108.4, Approval Required; 2001 California Plumbing Code, Section 103.5.4, Inspection Request; Section 301.1.1, Approval].

The responsible mechanical engineer shall stamp and sign all plans, drawings and calculations for the major piping and plumbing systems subject to the CBO design review and approval, and submit a signed statement to the CBO when the said proposed piping and plumbing systems have been designed, fabricated and installed in accordance with all of the applicable laws, ordinances, regulations and industry standards [Section 106.3.4, Architect or Engineer of Record], which may include, but not be limited to:

- American National Standards Institute (ANSI) B31.1 (Power Piping Code);
- ANSI B31.2 (Fuel Gas Piping Code);
- ANSI B31.3 (Chemical Plant and Petroleum Refinery Piping Code);
- ANSI B31.8 (Gas Transmission and Distribution Piping Code);
- Title 24, California Code of Regulations, Part 5 (California Plumbing Code);
- Title 24, California Code of Regulations, Part 6 (California Energy Code, for building energy conservation systems and temperature control and ventilation systems);
- Title 24, California Code of Regulations, Part 2 (California Building Code); and
- Specific City/County code.

The CBO may deputize inspectors to carry out the functions of the code enforcement agency [2001 CBC, Section 104.2.2, Deputies].

Verification: At least 30 days (or project owner and CBO approved alternative timeframe) prior to the start of any increment of major piping or plumbing construction listed in **Facility Design Table 2**, Condition of Certification **GEN-2** above, the project owner shall submit to the CBO for design review and approval the final plans, specifications and calculations, including a copy of the signed and stamped statement

from the responsible mechanical engineer certifying compliance with the applicable LORS, and shall send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

The project owner shall transmit to the CPM, in the Monthly Compliance Report following completion of any inspection, a copy of the transmittal letter conveying the CBO's inspection approvals.

MECH-2 For all pressure vessels installed in the plant, the project owner shall submit to the CBO and California Occupational Safety and Health Administration (Cal-OSHA), prior to operation, the code certification papers and other documents required by the applicable LORS. Upon completion of the installation of any pressure vessel, the project owner shall request the appropriate CBO and/or Cal-OSHA inspection of said installation [2001 CBC, Section 108.3, Inspection Requests].

The project owner shall:

1. Ensure that all boilers and fired and unfired pressure vessels are designed, fabricated and installed in accordance with the appropriate section of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, or other applicable code. Vendor certification, with identification of applicable code, shall be submitted for prefabricated vessels and tanks; and

2. Have the responsible design engineer submit a statement to the CBO that the proposed final design plans, specifications and calculations conform to all of the requirements set forth in the appropriate ASME Boiler and Pressure Vessel Code or other applicable codes.

Verification: At least 30 days (or project owner and CBO approved alternative timeframe) prior to the start of on-site fabrication or installation of any pressure vessel, the project owner shall submit to the CBO for design review and approval, the above listed documents, including a copy of the signed and stamped engineer's certification, with a copy of the transmittal letter to the CPM.

The project owner shall transmit to the CPM, in the Monthly Compliance Report following completion of any inspection, a copy of the transmittal letter conveying the CBO's and/or Cal-OSHA inspection approvals.

MECH-3 The project owner shall submit to the CBO for design review and approval the design plans, specifications, calculations and quality control procedures for any heating, ventilating, air conditioning (HVAC) or refrigeration system. Packaged HVAC systems, where used, shall be identified with the appropriate manufacturer's data sheets.

The project owner shall design and install all HVAC and refrigeration systems within buildings and related structures in accordance with the CBC and other applicable codes. Upon completion of any increment of construction, the project owner shall request the CBO's inspection and approval of said

construction. The final plans, specifications and calculations shall include approved criteria, assumptions and methods used to develop the design. In addition, the responsible mechanical engineer shall sign and stamp all plans, drawings and calculations and submit a signed statement to the CBO that the proposed final design plans, specifications and calculations conform with the applicable LORS [2001 CBC, Section 108.7, Other Inspections; Section 106.3.4, Architect or Engineer of Record].

Verification: At least 30 days (or project owner and CBO approved alternative timeframe) prior to the start of construction of any HVAC or refrigeration system, the project owner shall submit to the CBO the required HVAC and refrigeration calculations, plans and specifications, including a copy of the signed and stamped statement from the responsible mechanical engineer certifying compliance with the CBC and other applicable codes, with a copy of the transmittal letter to the CPM.

ELEC-1 Prior to the start of any increment of electrical construction for electrical equipment and systems 480 volts and higher, listed below, with the exception of underground duct work and any physical layout drawings and drawings not related to code compliance and life safety, the project owner shall submit, for CBO design review and approval, the proposed final design, specifications and calculations [CBC 2001, Section 106.3.2, Submittal documents]. Upon approval, the above listed plans, together with design changes and design change notices, shall remain on the site or at another accessible location for the operating life of the project. The project owner shall request that the CBO inspect the installation to ensure compliance with the requirements of applicable LORS [2001 CBC, Section 108.4, Approval Required, and Section 108.3, Inspection Requests]. All transmission facilities (lines, switchyards, switching stations and substations) are handled in Conditions of Certification in the **Transmission System Engineering** section of this document.

A. Final plant design plans to include:

   1. one-line diagrams for the 13.8 kV, 4.16 kV and 480 V systems; and

   2. system grounding drawings.

B. Final plant calculations to establish:

   1. short-circuit ratings of plant equipment;

   2. ampacity of feeder cables;

   3. voltage drop in feeder cables;

   4. system grounding requirements;

   5. coordination study calculations for fuses, circuit breakers and protective relay settings for the 13.8 kV, 4.16 kV and 480 V systems;

   6. system grounding requirements; and

7. lighting energy calculations.

C. The following activities shall be reported to the CPM in the Monthly Compliance Report:

1. Receipt or delay of major electrical equipment;

2. Testing or energization of major electrical equipment; and

3. A signed statement by the registered electrical engineer certifying that the proposed final design plans and specifications conform to requirements set forth in the Energy Commission Decision.

Verification: At least 30 days (or project owner and CBO approved alternative timeframe) prior to the start of each increment of electrical construction, the project owner shall submit to the CBO for design review and approval the above listed documents. The project owner shall include in this submittal a copy of the signed and stamped statement from the responsible electrical engineer attesting compliance with the applicable LORS, and shall send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

REFERENCES

VSE (Valle del Sol Energy, LLC). 2005b. Application for Certification for Sun Valley Energy Project, Volumes 1 and 2. Submitted to the California Energy Commission, December 1, 2005.

GEOLOGY AND PALEONTOLOGY

Dal Hunter, Ph.D., C.E.G.

SUMMARY OF CONCLUSIONS

With the exception of strong ground shaking during an earthquake, the Sun Valley Energy Project (SVEP) site lies in an area that generally exhibits low geologic hazards. The effects of strong ground shaking must be mitigated through structural design as required by the California Building Code (2001), and clay soils should be mitigated based on the recommendations in the geotechnical report. There are no known viable geologic or mineralogical resources. Paleontological resources have been documented in the general area of the project, though no significant fossils were found during field explorations in the immediate vicinity. The potential impacts to paleontological resources due to construction activities will be mitigated as required by the Conditions of Certification.

Based on this information, it is staff's opinion that the potential for significant adverse cumulative impacts to the projects from geologic hazards, and to potential geologic, minerologic, and paleontologic resources from the construction, operation, and closure of the proposed project, is low. It is Energy Commission staff's opinion that the SVEP can be designed and constructed in accordance with all applicable laws, ordinances, regulations, and standards (LORS), and in a manner that protects environmental quality and assures public safety.

INTRODUCTION

In this section, Energy Commission staff discusses potential impacts of the proposed SVEP regarding geologic hazards, geologic (including mineralogic), and paleontologic resources. Staff's objective is to ensure that there will be no significant adverse impacts to significant geological and paleontological resources during project construction, operation, and closure. A brief geological and paleontological overview is provided. The section concludes with staff's proposed monitoring and mitigation measures with respect to geologic hazards and geologic, mineralogic, and palentologic resources, with the inclusion of Conditions of Certification. Cultural resources are addressed in a separate section of this document.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

The applicable LORS are listed in the Application for Certification (AFC) (VSE 2005b, §§ 8.4.5, 8.8.5). The following is a brief description of the current LORS for geologic hazards and resources, and mineralogic and paleontologic resources.

GEOLOGY AND PALENTOLOGY Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable Law	Description
Federal	The proposed SVEP is not located on federal land. There are no federal LORS for geologic hazards and resources for this site.
State of California Division 15 of the Public Resources Code, Section 25527	The Warren-Alquist Act requires the California Energy Commission to "give the greatest consideration to the need for protecting areas of critical environmental concern, including, but not limited to, unique and irreplaceable scientific, scenic, and educational wildlife habitats; unique historical archaeological, and cultural site…" With respect to paleontologic resources, the CED relies on the following guidelines from the Society for Vertebrate Paleontology (SVP).
SVP, 1995	The "Measures for Assessment and Mitigation of Adverse Impacts to Non-Renewable Paleontological Resources: Standard Procedures" is a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontological resources. The measures were adopted in October 1995 by the Society for Vertebrate Paleontology, a national organization of professional scientists.
CBSC, 2001 (Particularly, Part 2, CBC)	The California Building Code (CBC) includes a series of standards that are used in project investigation, design, and construction (including grading and erosion control)
Local	None

SETTING

The proposed SVEP site is a 20-acre parcel south of the existing Southern California Edison Valley Substation in the vicinity of Romoland, California. The site is presently undeveloped farm land. The proposed project consists of five, natural-gas-fired simple-cycle turbine generators producing a total of 500 MW. Ancillary facilities include a 600-foot-long tower-supported electrical transmission line to the Valley Substation north of the site, and about ¾ mile of underground wastewater pipeline extending to the west of the site. A 750 foot long gas pipeline will be required to connect into an existing main in Menifee Road. Other utility pipelines for reclaimed water, potable water, and sewer service will each only be about 20 feet long.

REGIONAL SETTING

The SVEP site is located on a relatively flat Quaternary alluvial plain within the Perris Valley. The Perris Valley lies within the Perris Block, a stable structural block of crystalline bedrock between major active transverse faults. Bedrock of hills within the vicinity is generally granitic in origin, although metamorphic or altered sedimentary rock remnants are present in the upper elevations of local hills. Sediments under the project site are primarily Quaternary sediments overlying presumed granitic bedrock at unknown depth.

PROJECT SITE DESCRIPTION

The original grade at the energy facility footprint is shallow (less than 1 percent), at an elevation between elevation 1,450 and 1,460 feet above mean sea level. Subsurface conditions consist of a thin layer of sandy clay (three feet thick) over at least 30 feet of very dense fine-to-medium-grained silty sand. Surface soils may be Holocene in age and deeper soils are Pleistocene in age.

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

There are two types of impacts considered in this section. The first are geologic hazards, which could impact proper functioning of the proposed facility. The second considers potential impacts the proposed facility could have on existing geologic, mineralogic, and paleontologic resources in the area.

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

No federal LORS with respect to geologic hazards and geologic and mineralogic resources apply to this project. The CBSC and CBC (2001) provide geotechnical and geological investigation and design guidelines, which engineers must adhere to when designing a proposed facility. As a result, the criteria used to assess geologic hazard impact significance includes evaluating each potential hazard in relation to being able to adequately design and construct the proposed facility. Geologic hazards to be considered include faulting and seismicity, liquefaction, dynamic compaction, hydrocompaction, subsidence, expansive soils, landslides, tsunamis and seiches. With the exception of actual ground rupture (faulting) and tsunamis, there are a number of common engineering solutions to mitigate geological hazards.

The California Environmental Quality Act (CEQA) Guidelines, Appendix G, provides a checklist of questions that a lead agency should normally address if relevant to a project's environmental impacts.

- Section (V) (c) asks if the project will directly or indirectly destroy a unique paleontological resource or site or unique geological feature. This assessment is a matter of judgment with the potential for differing opinions.

- Sections (VI) (a), (b), (c), (d), and (e) pose questions that are focused on whether or not the project would expose persons or structures to geologic hazards.

- Sections (X) (a) and (b) pose questions about the project's effect on mineral resources. In most cases, mineral resources are well established and there is little potential for new discoveries.

With respect to impacts the proposed facility may have on existing geologic and mineralogic resources, geologic and mineral resource maps for the surrounding area have been reviewed, in addition to any site-specific information provided by the applicant, to determine if geologic and mineralogic resources are present in the area. When available, operating procedures of the proposed facility, in particular ground water

extraction and mass grading, are reviewed to determine if such operations could adversely impact such resources.

Staff reviewed existing paleontologic information for the surrounding area, as well as site-specific information generated by the applicant for the SVEP. All research was conducted in accordance with accepted assessment protocol (SVP 1995) to determine if there are any known paleontologic resources in the general area. If present or likely to exist, Conditions of Certification are applied to the project approval, which outlines procedures required during construction to mitigate impacts to potential resources.

DIRECT/INDIRECT IMPACTS AND MITIGATION

Ground shaking during an earthquake and clay expansion represent the only known geologic hazards at this site. The potential hazards can be effectively mitigated through facility design. Conditions of Certification **GEN-1, GEN-5, and CIVIL-1** in the **Facility Design** section should mitigate these impacts to a less than significant level.

No viable geologic or mineralogic resources are known to exist in the area. Paleontological resources in the top five feet of site soils, which will be impacted by project grading, are minimal to negligible due to historic disturbance, and due to their recent age. Paleontological resources below five feet depth include Pleistocene sediments which may have high sensitivity to construction and high importance. Such important paleontological resources have not been encountered on the site or nearby areas, including the Inland Empire Energy Center (IEEC; CALPINE, 2001a), currently under construction approximately 0.5 mile northwest of the proposed SVEP. Some paleontologic resources, however, have been encountered in similar deposits within six miles of the project site. Since the proposed SVEP will include significant amounts of grading, foundation excavation, and utility trenching, staff considers the probability that paleontological resources will be encountered during such activities to be moderate in native materials below five feet depth. This assessment is based on SVP criteria, our experience with IEEC, the County of Riverside Advisory Council Use Permit #3499, and the confidential paleontological report appended to the AFC. Conditions of Certification **PAL-1** to **PAL-7** are designed to mitigate any paleontological resource impacts, as discussed above, to a less than significant level.

The proposed Conditions of Certification are to allow the Energy Commission Compliance Project Manager (CPM) and the applicant to adopt a compliance monitoring scheme that will ensure compliance with LORS applicable to geologic hazards, and to protection of geologic, mineralogic, and paleontologic resources.

Based on the information below, it is staff's opinion that the potential for significant adverse impacts to the project from geologic hazards, and to potential geologic, mineralogic, and paleontologic resources from the proposed project, is very low.

GEOLOGICAL HAZARDS

The AFC (VSE 2005b) provides documentation of potential geologic hazards at the SVEP plant site, in addition to some subsurface exploration information. Review of the

AFC, coupled with our independent research, indicates that the potential for geologic hazards to impact the plant site is low.

Our independent research included review of available geologic maps, reports, and related data of the SVEP plant site. Geological information was available from the California Geological Survey (CGS), California Division of Mines and Geology (CDMG), and other governmental organizations.

Faulting and Seismicity

Energy Commission staff reviewed the California Division of Mines and Geology publication *Fault Activity Map of California and Adjacent Areas with Locations and Ages of Recent Volcanic Eruptions*, dated 1994 (CDMG 1994). Energy Commission staff did not observe any surface faulting in aerial photos obtained for the site in stereo pairs. No active faults are known to cross the SVEP site or its associated linear facilities. The potential of surface rupture on a fault at the energy facility footprint is considered to be very low, since no faults are known to have ruptured the ground surface of the proposed energy facility location. The closest known active fault is the San Jacinto fault (a regional right-lateral slip fault) which is located 15 kilometers (km) (9.5 miles) northeast of the proposed energy facility. The next closest known active fault is the Elsinore fault (a regional right-lateral slip fault) which is located 16 km (10 miles) northeast of the proposed energy facility. Both of these faults are designated as Type B faults (ICBO, 1998).

The project is located within seismic zone 4 as delineated on Figure 16-2 of the 2001 edition of the California Building Code. Seismic zone 4 is the zone with the highest probability of a large earthquake and severe ground shaking during the life of the project. The soil profile for this site is classified as S_c, which can be expected to amplify the bedrock ground acceleration.

The estimated peak horizontal ground acceleration for the power plant is 0.41g for bedrock acceleration based on 10 percent probability of exceedence in 50 years, or 0.61g for 2 percent probability of exceedence in 50 years (http://eqdesign.cr.usgs.gov/cgi.bin/). The former bedrock ground acceleration (0.41g) agrees with the results of probabilistic seismic analysis included in the geotechnical report (CHJ, 2005).

Liquefaction

Liquefaction is a condition in which a cohesionless soil may lose shear strength due to a sudden increase in pore water pressure. Because the alluvium under the site is dense and the depth to ground water is in excess of 30 feet below existing grade, the potential for liquefaction at the power plant site is negligible.

Dynamic Compaction

Dynamic compaction of soils results when relatively unconsolidated granular materials experience vibration associated with seismic events. The vibration causes a decrease in soil volume, as the soil grains tend to rearrange into a more dense state (an increase is soil density). The decrease in volume can result in settlement of overlying structural improvements.

The potential for dynamic compaction at the site is considered very low since geotechnical exploration borings indicate a very dense soils profile.

Hydrocompaction

Hydrocompaction is the process of the loss of soil volume upon the application of water. The soils at the site are granular and dense enough that hydrocompaction is not considered to be a potential problem at the SVEP.

Subsidence

Ground subsidence is typically caused by petroleum or ground water withdrawal such that the effective unit weight of the soil profile is increased, which increases the effective stress on the deeper soils. This results in consolidation/settlement of the underlying soils. Since the project site alluvium and engineered fill are dense and the applicant is not proposing to pump ground water, staff has determined that there is no significant potential for subsidence due to ground water withdrawal at the proposed SVEP.

Expansive Soils

Soil expansion occurs when clay-rich soils, with an affinity for water, exist in-place at a moisture content below their plastic limit. The addition of moisture from irrigation, capillary tension, water line breaks, etc. causes the clay soils to collect water molecules in their structure, which in turn causes an increase in the overall volume of the soil. This increase in volume can correspond to movement of overlying structural improvements. The top three feet of soil in the northern portion of the site are lean clays with medium expansion potential, and could result in some shrink-swell behavior. Mitigation of expansive soil, by over-excavation and replacement of these materials under the proposed structures, is recommended by the project geotechnical report, (CHJ, Inc., 2005), Appendix 10G of the Application for Certification.

Landslides

Landsliding potential at the SVEP site is negligible, since the proposed energy facility is located on a broad, gently sloping (1 percent to the west) alluvial fan.

Flooding

The SVEP lies on a very gently sloping alluvium plain. Such geomorphic features are predominantly the result of numerous, infrequent but intense flash flood events. The Federal Emergency Management Agency has mapped the site as lying outside of any designated flood zones (FEMA, 1996) so that risk for flooding is minimal.

Tsunamis and Seiches

The proposed SVEP site is not near any large body of water. As a result, the potential for tsunamis to affect the operation of the facility is considered negligible. There is also no potential for a seiche wave to impact the operation of the facility.

GEOLOGIC, MINERALOGIC, AND PALEONTOLOGIC RESOURCES

Energy Commission staff have reviewed applicable geologic maps and reports for this area (CDC, 2001; CDMG, 1987; CDMG, 1990; CDMG, 1998; CDMG, 1999; Morton,

2003). No geological resources have been identified at the energy facility location, or the proposed utility connections. Mineralogical resources in the vicinity of the project include sand, gravel, and gold. Department of Conservation, Division of Mines and Geology Special Report 143 (CDMG 1987) indicates that the proposed energy facility site and linear facilities location are designated by the California Department of Conservation, Division of Mines and Geology as MRZ-3 (areas containing mineral [sand and gravel] deposits the significance of which can not be evaluated from the available data). Given the soil profile determined from the geotechnical exploration, there is low potential for this site to have economically valuable sand and gravel or other mineral deposits.

CDMG (1998) reports the designation of the Menifee gold mining district about eight miles south of Perris, California, which is the approximate vicinity of the project area. The gold deposits were located in narrow quartz veins in quartz diorite. It was reported that none of the mining prospects were extensively developed. (Please note that this reference is a reprint of a report initially printed in 1963, and updated no more recently than 1969.)

Big Ten (1994) shows gold mines or prospects on Double Butte two miles due east of the project site and also an undetermined prospect on the unnamed ridge one mile to the south (shown as located where McCall Boulevard crosses the top of the ridge). The mine sites on Double Butte are also shown on the USGS topographic map, at a distance of about 7.5 miles southeast of Perris. Aerial photos (I.K. Curtis 1989) show a moderately developed industrial facility on the Double Butte site, presumed to be one or more gold mines or a quarry. No evidence of the southern site can be seen in the aerial photographs. CDMG (1968) identifies the mines on Double Butte as gold mines (Twin Buttes No. 1 and No. 2, Section 18, Township 5 South, Range 2 West), and the southern mine or claim also as containing gold, and designated as the Romoland (edge of Sections 23 and 26, Township 5 South, Range 3 East). The Romoland mineral prospect is mapped about ¼ mile further southwest of the location as mapped by Big Ten (1994), or about 1-1/4 miles south-southwest of the SVEP site. CDMG (1968) also shows a decomposed granite quarry located about two miles south of the SVEP site (Section 26, Township 5 South, Range 3 West).

Because these two locations are within the approximate correct distance from Perris, and no other gold prospects are mapped in the vicinity, it is presumed that they constitute the Menifee gold mining district reported by CDMG (1998). While the exact limits and extent of the Menifee gold mining district have not been established, these mineral resources are expected to be exclusively in granodiorite and quartz diorite basement rocks, not in Quaternary alluvium. There is no mention in the literature or other evidence of placer gold deposits in the Quaternary alluvium, therefore, the potential for mineralogical resources beneath the project site is low.

Regarding paleontological resources, Energy Commission staff has reviewed the paleontological resources assessments, Section 8.8 and Appendix 8.8 to the AFC (VSE 2005b), as well as the confidential paleontologic report for the project. Geology at the energy facility footprint location is made up of Quaternary alluvium. Surface soils to about five feet depth have low paleontological sensitivity, due to previous agricultural and construction activities. Construction activities that excavate deeper than five feet

below existing grade would normally be considered to have high paleontological sensitivity based on the presence of significant fossils within the same alluvial soil about six miles from the site. In this case, we assess the sensitivity as moderate based on construction monitoring for paleontologic resources currently being conducted on the nearby IEEC site.

Staff have proposed Conditions of Certification that will enable the applicant to mitigate impacts upon paleontological resources to a less than significant level should they be encountered during construction, operation, and closure of the project. Staff will entertain the prospect of reducing the level of monitoring, if recommended by the project Paleontologic Resource Specialist (PRS), after examination of representative deep excavations.

Construction Impacts and Mitigation

Expansive clay present on the site must be addressed during construction (See **Conditions of Certification, Facility Design**).

As noted above, no viable geologic or mineralogic resources are known to exist in the area. Significant Paleontological resources have been documented in Quanternary Alluvium within six miles of the project site so that native materials deeper than about five feet may exhibit a high sensitivity rating with respect to containing significant paleontologic resources. Since construction of the proposed project will include significant grading, foundation excavation, and utility trenching, staff considers the probability that paleontological resources will be encountered to be only moderate in native materials, based on SVP assessment criteria and our experience with nearby IEEC. **Conditions of Certification PAL-1 to PAL-7** are designed to mitigate any paleontological resource impacts, as discussed above, to a less than significant level.

Based upon the literature and archives search, field surveys and compliance documentation for the SVEP, the applicant has proposed monitoring and mitigation measures to be followed during the construction of the SVEP. Energy Commission staff agree with the applicant that the facility can be designed and constructed to minimize the effect of geologic hazards at the site, and that impacts to vertebrate fossils encountered during construction of the power plant and associated linears would be mitigated to a level of insignificance.

Operation Impacts and Mitigation

Operation of the proposed SVEP does not involve post-construction ground disturbance. As a consequence, operation of the facility should not have any adverse impact on geologic, mineralogic, or paleontologic resources.

CUMULATIVE IMPACTS AND MITIGATION

With the exception of strong ground shaking during an earthquake, the SVEP site lies in an area that generally exhibits low geologic hazards and no known viable geologic or mineralogic resources. Strong ground shaking must be mitigated through foundation design as required by the CBC (2001). Expansive clays and disturbed surface soil, in the upper few feet of the soils profile, must be mitigated in accordance with the project

geotechnical investigation (CHJ, Inc. 2005) and **Conditions of Certification GEN-1, GEN-5, and CIVIL-1** under **Facility Design**. Paleontological resources have been documented in the general area of the project, although none have been found to date during construction and compliance monitoring of the nearby IEEC (IEEC; Calpine, 2001a). The potential impacts to paleontological resources due to construction activities will be mitigated as required by **Conditions of Certification PAL-1 to PAL-7**. Based on this information, it is staff's opinion that the potential for significant adverse cumulative impacts to the project from geologic hazards, and to potential geologic, mineralogic, and paleontologic resources from the proposed project, is very low.

Based upon the literature and archives search, field surveys and compliance documentation for the nearby IEEC project, the applicant has proposed monitoring and mitigation measures to be followed during the construction of the SVEP. Energy Commission staff agree with the applicant that the facility can be designed and constructed to minimize the effect of geologic hazards at the site, and that impacts to vertebrate fossils encountered during construction of the power plant and associated linears would be mitigated to a level of insignificance.

The proposed Conditions of Certification are to allow the Energy Commission Compliance Project Manager (CPM) and the applicant to adopt a compliance monitoring scheme that will ensure compliance with LORS applicable to geologic hazards, and geologic, mineralogic, and paleontologic resources.

FACILITY CLOSURE

A definition and general approach to closure is presented in the General Conditions section of this assessment. Facility closure activities are not anticipated to impact geologic, mineralogic, or paleontologic resources. This is due to the fact that no such resources are known to exist at the power plant location or along its proposed linears. In addition, decommissioning and closure of the power plant should not negatively affect geologic, mineralogic, or paleontologic resources since the majority of the ground disturbed in plant decommissioning and closure would have been disturbed during construction and operation of the facility.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

Staff has received comments regarding geologic hazards, mineral resources, or paleontology only from Riverside County. The County of Riverside has provided an Advisory Conditional Use Permit which would require appropriate paleontological monitoring during construction. The Conditions of Certification **PAL-1 to PAL-7** will mitigate any potential impacts on paleontological resources (County of Riverside, 2006a).

CONCLUSIONS

The applicant will likely be able to comply with applicable LORS, provided that the proposed Conditions of Certification are followed. The project should have no adverse impact with respect to design and construction of the project, and geologic, mineralogic,

and paleontologic resources. Staff proposes to ensure compliance with applicable LORS through the adoption of the proposed Conditions of Certification listed below.

PROPOSED CONDITIONS OF CERTIFICATION

General Conditions of Certification with respect to Geology are covered under Conditions of Certification **GEN-1, GEN-5, and CIVIL-1** in the **Facility Design** section. Paleontological Conditions of Certification follow. It is staff's opinion that potential to encounter paleontologic resources is low in the upper five feet and moderate below five feet. Staff will entertain the prospect of reducing monitoring intensity, at the recommendation of the project PRS, following examination of sufficient, representative deep excavations.

PAL-1 The project owner shall provide the Compliance Project Manager (CPM) with the resume and qualifications of its Paleontological Resource Specialist (PRS) for review and approval. If the approved PRS is replaced prior to completion of project mitigation and submittal of the Paleontological Resources Report, the project owner shall obtain CPM approval of the replacement PRS. The project owner shall submit to the CPM to keep on file, resumes of the qualified Paleontological Resource Monitors (PRMs). If a PRM is replaced, the resume of the replacement PRM shall also be provided to the CPM.

The PRS resume shall include the names and phone numbers of references. The resume shall also demonstrate to the satisfaction of the CPM, the appropriate education and experience to accomplish the required paleontological resource tasks.

As determined by the CPM, the PRS shall meet the minimum qualifications for a vertebrate paleontologist as described in the Society of Vertebrate Paleontology (SVP) guidelines of 1995. The experience of the PRS shall include the following:

1. institutional affiliations, appropriate credentials and college degree,
2. ability to recognize and collect fossils in the field;
3. local geological and biostratigraphic expertise;
4. proficiency in identifying vertebrate and invertebrate fossils and;
5. at least three years of paleontological resource mitigation and field experience in California, and at least one year of experience leading paleontological resource mitigation and field activities.

The project owner shall ensure that the PRS obtains qualified paleontological resource monitors to monitor as the PRS deems necessary on the project. Paleontologic resource monitors (PRMs) shall have the equivalent of the following qualifications:

- BS or BA degree in geology or paleontology and one year experience monitoring in California; or
- AS or AA in geology, paleontology or biology and four years experience monitoring in California; or
- Enrollment in upper division classes pursuing a degree in the fields of geology or paleontology and two years of monitoring experience in California.

Verification:

(1) At least 60 days prior to the start of ground disturbance, the project owner shall submit a resume and statement of availability of its designated PRS for on-site work.

(2) At least 20 days prior to ground disturbance, the PRS or project owner shall provide a letter with resumes naming anticipated monitors for the project and stating that the identified monitors meet the minimum qualifications for paleontological resource monitoring required by the condition. If additional monitors are obtained during the project, the PRS shall provide additional letters and resumes to the CPM. The letter shall be provided to the CPM no later than one week prior to the monitor beginning on-site duties.

(3) Prior to the termination or release of a PRS, the project owner shall submit the resume of the proposed new PRS to the CPM for review and approval.

PAL-2 The project owner shall provide to the PRS and the CPM, for approval, maps and drawings showing the footprint of the power plant, construction laydown areas, and all related facilities. Maps shall identify all areas of the project where ground disturbance to greater than five feet depth is anticipated. If the PRS requests enlargements or strip maps for linear facility routes, the project owner shall provide copies to the PRS and CPM. The site grading plan and the plan and profile drawings for the utility lines would be acceptable for this purpose. The plan drawings should show the location, depth, and extent of all ground disturbances and can be at a scale of 1 inch = 40 feet to 1 inch = 100 feet range. If the footprint of the power plant or linear facility changes, the project owner shall provide maps and drawings reflecting these changes to the PRS and CPM.

If construction of the project will proceed in phases, maps and drawings may be submitted prior to the start of each phase. A letter identifying the proposed schedule of each project phase shall be provided to the PRS and CPM. Prior to work commencing on affected phases, the project owner shall notify the PRS and CPM of any construction phase scheduling changes.

At a minimum, the project owner shall ensure that the PRS or PRM consults weekly with the project superintendent or construction field manager to confirm area(s) to be worked during the next week, until ground disturbance is completed.

Verification:

(1) At least 30 days prior to the start of ground disturbance, the project owner shall provide the maps and drawings to the PRS and CPM.

(2) If there are changes to the footprint of the project, revised maps and drawings shall be provided to the PRS and CPM at least 15 days prior to the start of ground disturbance.

(3) If there are changes to the scheduling of the construction phases, the project owner shall submit a letter to the CPM within five days of identifying the changes.

PAL-3 The project owner shall ensure that the PRS prepares, and the project owner submits to the CPM for review and approval, a Paleontological Resources Monitoring and Mitigation Plan (PRMMP) to identify general and specific measures to minimize potential impacts to significant paleontological resources. Approval of the PRMMP by the CPM shall occur prior to any ground disturbance. The PRMMP shall function as the formal guide for monitoring, collecting and sampling activities and may be modified with CPM approval on the basis of on-site findings during construction. Copies of the PRMMP shall reside with the PRS, each monitor, the project owner's on-site manager, and the CPM.

The PRMMP shall be developed in accordance with the guidelines of the Society of Vertebrate Paleontology (SVP, 1995) and shall include, but not be limited to, the following:

1. Assurance that the performance and sequence of project-related tasks, such as any literature searches, pre-construction surveys, worker environmental training, fieldwork, flagging or staking, construction monitoring, mapping and data recovery, fossil preparation and collection, identification and inventory, preparation of final reports, and transmittal of materials for curation will be performed according to the PRMMP procedures;
2. Identification of the person(s) expected to assist with each of the tasks identified within the PRMMP and the Conditions of Certification;
3. A thorough discussion of the anticipated geologic units expected to be encountered, the location and depth of the units relative to the project when known, and the known sensitivity of those units based on the occurrence of fossils either in that unit or in correlative units;
4. An explanation of why, how, and how much sampling is expected to take place and in what units. Include descriptions of different sampling procedures that shall be used for fine-grained and coarse-grained units;
5. A discussion of the locations of where the monitoring of project construction activities is deemed necessary, and a proposed plan for the monitoring and sampling;

6. A discussion of the procedures to be followed in the event of a significant fossil discovery, including halting construction, resuming construction, and how notifications will be performed;
7. A discussion of equipment and supplies necessary for collection of fossil materials and any specialized equipment needed to prepare, remove, load, transport, and analyze large-sized fossils or extensive fossil deposits;
8. Procedures for inventory, preparation, and delivery for curation into a retrievable storage collection in a public repository or museum, which meets the Society of Vertebrate Paleontology standards and requirements for the curation of paleontological resources;
9. Identification of the institution that has agreed to receive any data and fossil materials collected, requirements or specifications for materials delivered for curation and how they will be met, and the name and phone number of the contact person at the institution; and
10. A copy of the paleontological Conditions of Certification.

Verification: At least 30 days prior to ground disturbance, the project owner shall provide a copy of the PRMMP to the CPM. The PRMMP shall include an affidavit of authorship by the PRS, and acceptance of the PRMMP by the project owner evidenced by a signature.

PAL-4 Prior to ground disturbance and for the duration of construction, the project owner and the PRS shall prepare and conduct weekly CPM-approved training for all recently employed project managers, construction supervisors and workers who are involved with or operate ground disturbing equipment or tools. Workers shall not excavate in sensitive units prior to receiving CPM-approved worker training. Worker training shall consist of an initial in-person PRS training during the project kick-off for those mentioned above. Following initial training, a CPM-approved video or in-person training may be used for new employees. The training program may be combined with other training programs prepared for cultural and biological resources, hazardous materials, or any other areas of interest or concern. No ground disturbance shall occur prior to CPM approval of the Worker Environmental Awareness Program (WEAP), unless specifically approved by the CPM.

The WEAP shall address the potential to encounter paleontological resources in the field, the sensitivity and importance of these resources, and the legal obligations to preserve and protect such resources.

The training shall include:

1. A discussion of applicable laws and penalties under the law;
2. Good quality photographs or physical examples of vertebrate fossils shall be provided for project sites containing units of high paleontologic sensitivity;

3. Information that the PRS or PRM has the authority to halt or redirect construction in the event of a discovery or unanticipated impact to a paleontological resource;
4. Instruction that employees are to halt or redirect work in the vicinity of a find and to contact their supervisor and the PRS or PRM;
5. An informational brochure that identifies reporting procedures in the event of a discovery;
6. A Certification of Completion of WEAP form signed by each worker indicating that they have received the training; and
7. A sticker that shall be placed on hard hats indicating that environmental training has been completed.

Verification:

(1) At least 30 days prior to ground disturbance, the project owner shall submit the proposed WEAP including the brochure with the set of reporting procedures the workers are to follow, to the CPM.

(2) At least 30 days prior to ground disturbance, the project owner shall submit the script and final video to the CPM for approval if the project owner is planning on using a video for interim training.

(3) If the owner requests an alternate paleontological trainer, the resume and qualifications of the trainer shall be submitted to the CPM for review and approval prior to installation of an alternate trainer. Alternate trainers shall not conduct training prior to CPM authorization.

(4) In the Monthly Compliance Report (MCR) the project owner shall provide copies of the WEAP Certification of Completion forms with the names of those trained and the trainer or type of training (in-person or video) offered that month. The MCR shall also include a running total of all persons who have completed the training to date.

PAL-5 The project owner shall ensure that the PRS and PRM(s) monitor consistent with the PRMMP all construction-related grading, excavation, trenching, and augering in areas where potentially fossil-bearing materials have been identified, both at the site and along any constructed linear facilities associated with the project. In the event that the PRS determines full time monitoring is not necessary in locations that were identified as potentially fossil-bearing in the PRMMP, the project owner shall notify and seek the concurrence of the CPM.

The project owner shall ensure that the PRS and PRM(s) have the authority to halt or redirect construction if paleontological resources are encountered. The project owner shall ensure that there is no interference with monitoring activities unless directed by the PRS. Monitoring activities shall be conducted as follows:

1. Any change of monitoring different from the accepted schedule presented in the PRMMP shall be proposed in a letter or email from the PRS and the project owner to the CPM prior to the change in monitoring and included in the Monthly Compliance Report. The letter or email shall include the justification for the change in monitoring and be submitted to the CPM for review and approval.
2. The project owner shall ensure that the PRM(s) keeps a daily log of monitoring of paleontological resource activities. The PRS may informally discuss paleontological resource monitoring and mitigation activities with the CPM at any time.
3. The project owner shall ensure that the PRS immediately notifies the CPM within 24 hours of the occurrence of any incidents of non-compliance with any paleontological resources Conditions of Certification. The PRS shall recommend corrective action to resolve the issues or achieve compliance with the Conditions of Certification.
4. For any significant paleontological resources encountered, either the project owner or the PRS shall notify the CPM within 24 hours or Monday morning in the case of a weekend when construction has been halted due to a paleontological find.

The project owner shall ensure that the PRS prepares a summary of the monitoring and other paleontological activities that will be placed in the Monthly Compliance Reports (MCR). The summary will include the name(s) of PRS or PRM(s) active during the month, general descriptions of training and monitored construction activities and general locations of excavations, grading, etc. A section of the report shall include the geologic units or subunits encountered; descriptions of sampling within each unit; and a list of identified fossils. A final section of the report will address any issues or concerns about the project relating to paleontologic monitoring including any incidents of non-compliance and any changes to the monitoring plan that have been approved by the CPM. If no monitoring took place during the month, the report shall include an explanation in the summary as to why monitoring was not conducted.

Verification: The project owner shall ensure that the PRS submits the summary of monitoring and paleontological activities in the MCR. When feasible, the CPM shall be notified 10 days in advance of any proposed changes in monitoring different from the plan identified in the PRMMP. If there is any unforeseen change in monitoring, the notice shall be given as soon as possible prior to implementation of the change.

PAL-6 The project owner, through the designated PRS, shall ensure that all components of the PRMMP are adequately performed including collection of fossil materials, preparation of fossil materials for analysis, analysis of fossils, identification and inventory of fossils, the preparation of fossils for curation, and the delivery for curation of all significant paleontological resource materials encountered and collected during the project construction.

Verification: The project owner shall maintain in their compliance file copies of signed contracts or agreements with the designated PRS and other qualified research

specialists. The project owner shall maintain these files for a period of three years after completion and approval of the CPM-approved Paleontological Resource Report (See **PAL-7**). The project owner shall be responsible to pay any curation fees charged by the museum for fossils collected and curated as a result of paleontological mitigation. A copy of the letter of transmittal submitting the fossils to the curating institution shall be provided to the CPM.

PAL-7 The project owner shall ensure preparation of a Paleontological Resources Report (PRR) by the designated PRS. The PRR shall be prepared following completion of the ground disturbing activities. The PRR shall include an analysis of the collected fossil materials and related information and submitted to the CPM for review and approval.

The report shall include, but is not limited to, a description and inventory of recovered fossil materials; a map showing the location of paleontological resources encountered; determinations of sensitivity and significance; and a statement by the PRS that project impacts to paleontological resources have been mitigated below the level of significance.

Verification: Within 90 days after completion of ground disturbing activities, including landscaping, the project owner shall submit the Paleontological Resources Report under confidential cover to the CPM.

Certification of Completion
Worker Environmental Awareness Program
Sun Valley Energy Project (05-AFC-3)

This is to certify these individuals have completed a mandatory California Energy Commission-approved Worker Environmental Awareness Program (WEAP). The WEAP includes pertinent information on Cultural, Paleontology and Biological Resources for all personnel (i.e., construction supervisors, crews and plant operators) working on-site or at related facilities. By signing below, the participant indicates that they understand and shall abide by the guidelines set forth in the Program materials. Include this completed form in the Monthly Compliance Report.

No.	Employee Name	Title/Company	Signature
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
21.			
22.			
23.			
24.			
25.			

Cultural Trainer: _____ Signature:_____Date: ___/___/____

PaleoTrainer: _____ Signature:_____Date: ___/___/____

Biological Trainer: _____ Signature:_____Date: ___/___/__

REFERENCES

Big Ten, Inc., 1994, *Big Ten's Map 2 Southern California Gold*, Santa Ana, Riverside, San Diego [Counties], Cocoa Beach, Florida.

CALPINE (Calpine Corporation/Hatfield). 2001a. Inland Empire Energy Center, Application for Certification. Submitted to the California Energy Commission, August 17, 2001.

CBC (California Building Code). 2001.

California Code of Regulations, Title 24 (*California Building Standards Code* [CBSC]), Part 2, *California Building Code* (CBC). 2001.

CDC (California Department of Conservation). 2001. *Oil, Gas, and Geothermal Fields in California.*

CDMG. 1968. *Map of Riverside County, California, Showing Locations of Mines and Mineral Resources.*, Open File Release 68-7, County Report.

CDMG. 1999. *Mines and Mineral Producers Active in California (1997-1998)*, Special Publication 103.

CDMG. 1998. *Gold Districts of California*, Sesquicentennial Edition, California Gold Discovery to Statehood, Bulletin 193.

CDMG. 1994. *Fault Activity Map of California and Adjacent Areas with Locations and Ages of Recent Volcanic Eruptions, Scale: 1:750,000.*

CDMG. 1990. *Industrial Minerals in California: Economic Importance, Present Availability, and Future Development*, Special Publication 105, Reprinted from U.S. Geological Survey Bulletin 1958.

CDMG. 1987. Mineral Land Classification of the Greater Los Angeles Area, Part VII Classification of Sand and Gravel Resources, San Bernadino Production-Consumption Region, DMG Special Report 143 Part VII.

CHJ Inc., 2005, *Geotechnical Investigation, Romoland Energy Site, Menifee & Matthews Road, Romoland Area, Riverside County, Prepared for TIC – The Industrial Company,* Colton, California, included in EME (2005) as Appendix 10G, Attachment 1.

County of Riverside, Transportation and Land Management Agency, Planning Department 2006a. Draft Advisory Conditional Use Permit #3499 for Sun Valley Energy Project.

FEMA (Federal Emergency Management Agency). 1996. *Flood Insurance Rate Map No. 060245-2085 C*, dated November 28, 1996.

ICBO (International Conference of Building Officials). 1998. *Map of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada.*

I.K. Curtis, Inc., 1989, Color Aerial Photographs, 1-30-98, Riv 52, Sheets 480 and 481, I.K Curtis, Burbank, California.

Morton, Geologic Map of the Romoland 7.5 Minute Quadrangle, Riverside County, California, U.S. Geological Survey Open File Report 03-102

SVP (Society for Vertebrate Paleontology). 1995. *Measures for Assessment and Mitigation of Adverse Impacts to Non-Renewable Paleontologic Resources: Standard Procedures.*

VSE (Valle del Sol Energy, LLC). 2005b. Application for Certification for Sun Valley Energy Project, Volumes 1 and 2. Submitted to the California Energy Commission, December 1, 2005.

POWER PLANT EFFICIENCY

Steve Baker

SUMMARY OF CONCLUSIONS

The project, if constructed and operated as proposed, would generate a nominal 500 MW of peaking electric power, at an overall project fuel efficiency of 41.8 percent lower heating value (LHV) at maximum full load. While it will consume substantial amounts of energy, it will do so in the most efficient manner practicable. It will not create significant adverse effects on energy supplies or resources, will not require additional sources of energy supply, and will not consume energy in a wasteful or inefficient manner. No energy standards apply to the project. Staff therefore concludes that the project would present no significant adverse impacts upon energy resources.

INTRODUCTION

The Energy Commission makes findings as to whether energy use by the Sun Valley Energy Project (SVEP) will result in significant adverse impacts on the environment, as defined in the California Environmental Quality Act (CEQA). If the Energy Commission finds that the SVEP's consumption of energy would create a significant adverse impact, it must determine whether there are any feasible mitigation measures that could eliminate or minimize the impacts. In this analysis, staff addresses the issue of inefficient and unnecessary consumption of energy.

In order to support the Energy Commission's findings, this analysis will:

- examine whether the facility will likely present any adverse impacts upon energy resources;
- examine whether these adverse impacts are significant; and if so,
- examine whether feasible mitigation measures exist that would eliminate the adverse impacts, or reduce them to a level of insignificance.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

No Federal, State or local/county laws, ordinances, regulations and standards (LORS) apply to the efficiency of this project.

SETTING

Valle del Sol Energy, LLC (VSE) proposes to construct and operate the 500 MW (nominal net output) simple cycle SVEP, enhancing power supply reliability in the Southern California electricity market by providing peaking power and power quality services, such as automatic generation control, during periods of high demand (hot summer days) (VSE 2005b, AFC §§ 1.4, 2.1.16, 2.3.1, 9.1, 10.3). SVEP will sell energy through contracts and into the merchant power market (VSE 2005b, AFC §§ 2.1.16, 10.3). The project will consist of five General Electric (GE) LMS100 gas turbine

generators and ancillary equipment. The applicant intends for the project to operate at annual capacity factors between 20 and 40 percent (VSE 2005b, AFC §§ 2.1.2, 2.1.16, 2.3.1, 10.2.2, 10.3). Each gas turbine will be equipped with evaporative inlet air cooling and compressor intercooling (via a five-cell evaporative cooling tower) to enhance power, as well as combustor water injection and selective catalytic reduction (SCR) to control oxides of nitrogen emissions (VSE 2005b, AFC §§ 1.1, 2.1.2, 2.1.4.1, 9.6.4).

The project will be constructed on a site in unincorporated Riverside County that is currently in agricultural use, but is zoned Manufacturing-Service Commercial. The site has access to natural gas, electric transmission, and reclaimed and potable water (VSE 2005b, AFC § 1.1, 2.0, 2.1.1, 2.1.6, 2.1.7.2, 2.3.3, 6.0, 7.1, 10.2.1).

ASSESSMENT OF IMPACTS

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE OF ENERGY RESOURCES

CEQA Guidelines state that the environmental analysis "…shall describe feasible measures which could minimize significant adverse impacts, including where relevant, inefficient and unnecessary consumption of energy" (Cal. Code Regs., tit. 14, § 15126.4(a)(1)). Appendix F of the Guidelines further suggests consideration of such factors as the project's energy requirements and energy use efficiency; its effects on local and regional energy supplies and energy resources; its requirements for additional energy supply capacity; its compliance with existing energy standards; and any alternatives that could reduce wasteful, inefficient and unnecessary consumption of energy (Cal. Code Regs., tit. 14, § 15000 et seq., Appendix F).
The inefficient and unnecessary consumption of energy, in the form of non-renewable fuels such as natural gas and oil, constitutes an adverse environmental impact. An adverse impact can be considered significant if it results in:

- adverse effects on local and regional energy supplies and energy resources;
- a requirement for additional energy supply capacity;
- noncompliance with existing energy standards; or
- the wasteful, inefficient and unnecessary consumption of fuel or energy.

PROJECT ENERGY REQUIREMENTS AND ENERGY USE EFFICIENCY

Any power plant large enough to fall under Energy Commission siting jurisdiction will consume large amounts of energy. Under average ambient conditions, the SVEP would burn natural gas at a nominal rate of 3,744 million Btu per hour LHV[1] (VSE 2005b, AFC Fig. 2.1-3; § 2.1.6). This is a substantial rate of energy consumption, and holds the potential to impact energy supplies. Under expected project conditions, electricity will be generated at a full load efficiency of approximately 42 percent LHV (VSE 2005b, AFC Fig. 2.1-3; §§ 9.1, 10.3).

[1] Lower heating value.

ADVERSE EFFECTS ON ENERGY SUPPLIES AND RESOURCES

The applicant has described its sources of supply of natural gas for the project (VSE 2005b, AFC §§ 1.1, 1.2, 2.0, 2.1.6, 2.3.3, 6.0, 10.2.1). Natural gas for the SVEP will be supplied from the existing Southern California Gas Company (SoCalGas) natural gas transmission pipelines located in Menifee Road, to the east of the project site. The SoCalGas natural gas system has access to gas from the Rocky Mountains, Canada and the Southwest. This represents a resource of considerable capacity, an adequate source for a project of this size under normal demand conditions. In times of extreme peak demand, an adequate supply of gas will depend on imports to the SoCalGas system at the Otay Mesa receipt point, where regasified LNG from Sempra's Costa Azul LNG facility in Baja California, Mexico enters California. This facility is currently under construction, and is projected to be in commercial operation by January 2008, before the SVEP will need its gas. It is therefore highly unlikely that the project could pose a significant adverse impact on natural gas supplies in California.

ADDITIONAL ENERGY SUPPLY REQUIREMENTS

Natural gas fuel will be supplied to the project by tapping one or more of three existing 30-inch diameter SoCalGas transmission pipelines via a new 12-inch diameter, 750 foot long interconnection (VSE 2005b, AFC §§ 1.1, 2.0). This is a resource with adequate delivery capacity for a project of this size. There is no real likelihood that the SVEP will require the development of additional energy supply capacity.

COMPLIANCE WITH ENERGY STANDARDS

No standards apply to the efficiency of the SVEP or other non-cogeneration projects.

ALTERNATIVES TO REDUCE WASTEFUL, INEFFICIENT AND UNNECESSARY ENERGY CONSUMPTION

The SVEP could be deemed to create significant adverse impacts on energy resources if alternatives existed that would reduce the project's use of fuel. Evaluation of alternatives to the project that could reduce wasteful, inefficient or unnecessary energy consumption first requires examination of the project's energy consumption. Project fuel efficiency, and therefore its rate of energy consumption, is determined by the configuration of the power producing system and by the selection of equipment used to generate power.

Project Configuration

The project objective is to support power supply reliability in the Southern California market by providing peaking power and power quality services, such as automatic generation control, during periods of high demand (hot summer days) (VSE 2005b, AFC §§ 1.4, 2.1.16, 2.3.1, 9.1, 10.3). A simple-cycle configuration is consistent with this objective. The SVEP will be configured as five simple cycle power plants in parallel, in which electricity is generated by five natural gas-fired turbine generators (VSE 2005b, AFC §§ 1.1, 2.0, 2.1.2, 2.1.16, 2.3.2.1). This configuration, with its short start-up time and fast ramping[2] capability, is well suited to providing peaking power. Further, when

[2] Ramping is increasing and decreasing electrical output to meet fluctuating load requirements.

reduced output is required, one or more turbine generators can be shut down, allowing the remaining machine(s) to produce a percentage of the full power at optimum efficiency, rather than operating a single, larger machine at a less efficient part load output.

The applicant intends for this facility to operate in peaking duty at an annual capacity factor between 20 and 40 percent for the five combustion turbines (VSE 2005b, AFC §§ 2.1.2, 2.1.16, 2.3.1, 10.2.2, 10.3). This is equivalent to each machine running between 1,750 and 3,500 hours per year.

Equipment Selection

Modern gas turbines embody the most fuel-efficient electric generating technology available today. The SVEP will employ five GE LMS100 gas turbine generators, the newest and most efficient such machine available (VSE 2005b, AFC §§ 1.1, 2.0, 2.1.2, 2.1.4.1, 2.1.16, 2.3.1, 9.1, 10.3). This model of the LMS100[3] is nominally rated at 103 MW at a rated fuel efficiency of 43.8 percent (GTW 2005; Morton 2005). The SVEP will actually produce 458 MW (91.6 MW per machine) at a site rated fuel efficiency of 41.8 percent LHV, based on average annual weather conditions (VSE 2005b, AFC Figure 2.1-3). This site rating differs from nominal figures due to power losses from parasitic loads, and to reduced system output due to flow losses caused by the inlet air cooling system and by the SCR unit installed on the exhaust of each turbine.

Efficiency of Alternatives to the Project

Alternative Generating Technologies

Alternative generating technologies for the SVEP are considered in the AFC (VSE 2005b, AFC § 9.6). Fossil fuels (coal and oil), hydroelectric, geothermal, biomass, wood waste, solar and wind power were all considered. Hydro and geothermal resources do not exist in Riverside County. Biomass and wood waste are not available in sufficient quantities. Solar and wind are not dispatchable, so are incapable of producing the ancillary services needed. Coal and oil are too highly polluting to be viable in Riverside County (VSE 2005b, AFC § 9.6.2). Staff agrees with the applicant that only natural gas-burning technologies are feasible for this project.

Natural Gas-Burning Technologies

Fuel consumption is one of the most important economic factors in selecting an electric generator; fuel typically accounts for over two-thirds of the total operating costs of a fossil-fired power plant (Power 1994). Under a competitive power market system, where operating costs are critical in determining the competitiveness and profitability of a power plant, the plant owner is thus strongly motivated to purchase fuel-efficient machinery.

[3] The SVEP will employ LMS100s with single annular combustors equipped with water injection for NOx control.

Capital cost is also important in selecting generating machinery. Recent progress in the development of gas turbines, incorporating technological advances made in the development of aircraft (jet) engines, combined with the cost advantages of assembly-line manufacturing, has made available machines that not only offer the lowest available fuel costs, but at the same time sell for the lowest per-kilowatt capital cost.

The GE LMS100

The applicant will employ five General Electric LMS100 gas turbine generators in the SVEP (VSE 2005b, AFC §§ 1.1, 2.0, 2.1.2, 2.1.4.1, 2.1.16, 2.3.1, 9.1, 10.3). The LMS100 gas turbine represents the most modern and efficient such machine now available. This machine is nominally rated at 103 MW and 43.8 percent efficiency LHV at ISO[4] conditions (GTW 2005; Morton 2005). (Staff compares alternative machines' ISO ratings as a common baseline, since project-specific ratings are not available for the alternative machines.)

In the LMS100, GE has taken a novel approach by combining technology from both aircraft engines and heavy industrial machines. Like most aeroderivatives, the LMS100 is basically a two-shaft engine, in which an initial low-pressure compressor section is driven by the final low-pressure turbine section. An independent high-pressure compressor section, spinning on a concentric shaft, is driven by the high-pressure turbine section. GE has done three things differently on the LMS100.

First, while the high-pressure compressor and turbine spool is taken from an aero engine (the GE CF6-80C2 that powers the Boeing 747 and the CF6-80E1 that powers the Boeing 767), the low pressure spool is taken from GE's industrial Frame 6 machine. Where the airflow (and, thus, power output) of GE's popular LM6000 aeroderivative engine (see below) was limited by airflow through the low pressure spool, this limit is removed by substituting these parts from the Frame 6.

Second, GE has employed a much more effective compressor interstage cooling system. On the LM6000 SPRINT[5] machine, after air has been partially compressed in the low pressure compressor, it is evaporatively cooled by spraying water into the interstage space. Since the air entering the high pressure compressor is now cooler than it would be without intercooling, less power is required to drive the high pressure compressor. This leaves more power to drive the electric generator, increasing both power output and fuel efficiency. On the LMS100, GE ducts the air discharged from the low pressure compressor away from the machine, where it can be more effectively cooled by a separate cooling system (once-through, evaporative or dry cooling systems can be employed). The cooled air is then ducted back into the high pressure compressor.

Third, GE has provided a third shaft, independent of the first two spools, to carry the power turbine,[6] which is in turn coupled to the electric generator. On most aeroderivative

[4] International Standards Organization (ISO) standard conditions are 15°C (59°F), 60 percent relative humidity, and one atmosphere of pressure (equivalent to sea level).

[5] SPRINT stands for "spray intercooling."

[6] This configuration is common in helicopters.

gas turbine generators, the generator is coupled directly to the low pressure turbine shaft. Since the generator must turn at synchronous speed (3,600 rpm in North America), the low pressure spool must also turn at this speed. This restricts design of the machine, preventing the turbine from operating at optimum levels. Since the LMS100's power turbine (and generator) are not mechanically coupled to the low pressure spool, this spool is free to spin at optimum speed (approximately 5,300 rpm at full load) (Morton 2005).

The net result of these design improvements is a doubling of power output, a ten percent improvement in fuel efficiency, and much greater operating flexibility. Where other gas turbine generators' fuel efficiency drops off rapidly when the machine is operated at less than full load, the LMS100's efficiency suffers much less at lower output. Further, the machine is capable of ramping at high rates. The LMS100 can be operated at loads as low as ten percent (10 MW), then ramped up quickly. When running at half load (50 MW), the machine can reach full load of nearly 100 MW in less than a minute. In addition, the LMS100 can go from a cold start to full load in ten minutes. Such operating flexibility make this the most capable machine available for providing such ancillary services as peaking, load following and automatic generation control.

Alternatives to the LMS100

Alternative machines that can meet the project's objectives are the LM6000 SPRINT, the SGT-800 and the FT8 TwinPac, which are aeroderivative machines adapted from General Electric, Siemens Power Generation and Pratt & Whitney aircraft engines, respectively.

The General Electric LM6000 SPRINT gas turbine generator in a simple cycle configuration is nominally rated at 50 MW and 40.5 percent efficiency LHV at ISO conditions (GTW 2005).

The Siemens SGT-800 gas turbine generator in a simple cycle configuration is nominally rated at 45 MW and 37 percent efficiency LHV at ISO conditions (GTW 2005).

The Pratt & Whitney FT8 TwinPac gas turbine generator in a simple cycle configuration that is nominally rated at 51 MW and 38.4 percent efficiency LHV at ISO conditions (GTW 2005).

Machine	Generating Capacity (MW)	ISO Efficiency (LHV)
GE LMS100	**103**	**43.8 %**
GE LM6000PC SPRINT	50	40.5 %
Siemens SGT-800	45	37.0 %
P & W FT8 TwinPac	51	38.4 %

Source: GTW 2005; Morton 2005

While the LMS100 enjoys a significant advantage in fuel efficiency over these alternative machines, its operating flexibility makes it even more attractive for peaking, load following and ancillary service than these efficiency numbers reflect. Staff agrees

with the applicant that the GE LMS100 is the most appropriate choice of machine for the SVEP.

The applicant also considered other gas-fired alternatives, such as the Rankine cycle (steam boiler and turbine), the combined cycle gas turbine, the Kalina Cycle, the Steam Injected Gas Turbine (STIG), the Humid Air Turbine (HAT) Cycle, and the Chemically Recuperated Gas Turbine (CRGT) (VSE 2005b, AFC §§ 9.6.1.1 through 9.6.1.5). None can match the LMS100 in terms of fuel efficiency, operating flexibility, small space requirements and capital and operating costs.

Inlet Air Cooling

A further choice of alternatives involves the selection of gas turbine inlet air-cooling methods.[7] The two commonly used techniques are the evaporative cooler or fogger, and the chiller (mechanical or absorption); both techniques increase power output by cooling the gas turbine inlet air. In general terms, a mechanical chiller can offer greater power output than the evaporative cooler on hot, humid days, but consumes electric power to operate its refrigeration process, thus slightly reducing overall net power output and, thus, overall efficiency. An absorption chiller uses less electric power, but necessitates the use of a substantial inventory of ammonia. An evaporative cooler or a fogger boosts power output best on dry days; it uses less electric power than a mechanical chiller, possibly yielding slightly higher operating efficiency. The difference in efficiency among these techniques is relatively insignificant.

The applicant proposes to employ evaporative inlet air cooling and compressor interstage cooling (VSE 2005b, AFC §§ 1.1, 2.0, 2.1.2, 2.1.4.1, 9.6.4). Given the climate at the SVEP site and the relative lack of superiority of one system over the other, staff agrees that the applicant's approach will yield no significant adverse energy impacts.

In conclusion, the project configuration (simple cycle) and generating equipment chosen appear to represent the most efficient feasible combination to satisfy the project objectives. There are no alternatives that could significantly reduce energy consumption.

CUMULATIVE IMPACTS

Staff is unaware of any other nearby projects that could combine with the SVEP to create cumulative impacts on natural gas resources. The SoCalGas natural gas supply system is adequate to supply this project without adversely impacting its other customers.

NOTEWORTHY PUBLIC BENEFITS

The applicant proposes to enhance power supply reliability in the Southern California electricity market by providing peaking power and power quality services, such as automatic generation control, during periods of high demand (hot summer days) (VSE

[7] A gas turbine's power output decreases as ambient air temperatures rise.

2005b, AFC §§ 1.4, 2.1.16, 2.3.1, 9.1, 10.3). By doing so in this most fuel-efficient manner, i.e., employing the most modern peaking gas turbine generator available, the SVEP will provide a benefit to the electric consumers of Southern California.

CONCLUSIONS

The project, if constructed and operated as proposed, would generate a nominal 500 MW of peaking electric power, at an overall project fuel efficiency of 41.8 percent LHV at maximum full load. While it will consume substantial amounts of energy, it will do so in the most efficient manner practicable. It will not create significant adverse effects on energy supplies or resources, will not require additional sources of energy supply, and will not consume energy in a wasteful or inefficient manner. No energy standards apply to the project. Staff therefore concludes that the project would present no significant adverse impacts upon energy resources. No cumulative impacts on energy resources are likely.

PROPOSED CONDITIONS OF CERTIFICATION

No conditions of certification are proposed.

REFERENCES

VSE (Valle del Sol Energy, LLC). 2005b. Application for Certification for Sun Valley Energy Project, Volumes 1 and 2. Submitted to the California Energy Commission, December 1, 2005.

GTW 2005 — Gas Turbine World. *Gas Turbine World 2005 Performance Specs*, 23rd Edition, January 2005.

Morton 2005 — Presentation by Andrew Morton, GE Power Regional Sales Manager, Western US, to California Energy Commission staff, October 11, 2005.

Power 1994. “Operating and maintaining IPP/cogen facilities,” *Power*, September 1994, p. 14.

POWER PLANT RELIABILITY

Steve Baker

SUMMARY OF CONCLUSIONS

Valle del Sol Energy, LLC predicts an equivalent availability factor of 92 to 98 percent, which staff believes is achievable. Based on a review of the proposal, staff concludes that the plant will be built and operated in a manner consistent with industry norms for reliable operation. This should provide an adequate level of reliability. No conditions of certification are proposed.

INTRODUCTION

In this analysis, Energy Commission staff addresses the reliability issues of the project to determine if the power plant is likely to be built in accordance with typical industry norms for reliability of power generation. Staff uses this level of reliability as a benchmark because it ensures that the resulting project would likely not degrade the overall reliability of the electric system it serves (see **Setting** below).

The scope of this power plant reliability analysis covers:

- equipment availability;
- plant maintainability;
- fuel and water availability; and
- power plant reliability in relation to natural hazards.

Staff examined the project design criteria to determine if the project is likely to be built in accordance with typical industry norms for reliability of power generation. While Valle del Sol Energy, LLC (VSE) has predicted an equivalent availability factor from 92 to 98 percent for the Sun Valley Energy Project (SVEP) (see below), staff uses typical industry norms as a benchmark, rather than VSE's projection, to evaluate the project's reliability.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

No Federal, State or local/county laws, ordinances, regulations and standards (LORS) apply to the reliability of this project.

SETTING

In the restructured competitive electric power industry, the responsibility for maintaining system reliability falls largely to the State's control area operators, such as the California Independent System Operator (Cal-ISO), that purchase, dispatch, and sell electric power throughout the State. How the Cal-ISO and other control area operators will ensure system reliability is an ongoing process; protocols are being developed and put in place that will allow sufficient reliability to be maintained under the competitive market system. "Must-run" power purchase agreements and "participating generator"

agreements are two mechanisms being employed to ensure an adequate supply of reliable power.

The Cal-ISO also requires those power plants selling ancillary services, as well as those holding reliability must-run contracts, to fulfill certain requirements, including:

- filing periodic reports on plant reliability;
- reporting all outages and their causes; and
- scheduling all planned maintenance outages with the Cal-ISO.

The Cal-ISO's mechanisms to ensure adequate power plant reliability apparently have been devised under the assumption that the individual power plants that compete to sell power into the system will each exhibit a level of reliability similar to that of power plants of past decades. However, there is cause to believe that, under free market competition, financial pressures on power plant owners to minimize capital outlays and maintenance expenditures may act to reduce the reliability of many power plants, both existing and newly constructed (McGraw-Hill 1994). It is possible that, if significant numbers of power plants were to exhibit individual reliability sufficiently lower than this historical level, the assumptions used by Cal-ISO to ensure system reliability would prove invalid, with potentially disappointing results. Until the restructured competitive electric power system has undergone an adequate shakeout period, and the effects of varying power plant reliability are thoroughly understood and compensated for, staff will recommend that power plant owners continue to build and operate their projects to the level of reliability to which all in the industry are accustomed.

As part of its plan to provide needed reliability, the applicant proposes to operate the 500 MW (nominal output) SVEP, a simple-cycle peaking power plant, providing reliable peaking power and ancillary services to the Southern California market (VSE 2005b, AFC §§ 1.4, 2.1.16, 9.1, 10.3). The project is expected to achieve an equivalent availability factor (EAF) in the range of 92 to 98 percent, and is designed to operate between approximately 50 and 100 percent of base load. The project is projected to actually operate at capacity factors between 20 and 40 percent during each year of its operating life, being dispatched on-peak and mid-peak to serve at times of high demand (summer daytime) (VSE 2005b, AFC §§ 2.1.2, 2.1.16, 2.3.1, 10.2.2, 10.3).

ASSESSMENT OF IMPACTS

METHOD FOR DETERMINING RELIABILITY

The Commission must make findings as to the manner in which the project is to be designed, sited and operated to ensure safe and reliable operation [Cal. Code Regs., tit. 20, § 1752(c)]. Staff takes the approach that a project is acceptable if it does not degrade the reliability of the utility system to which it is connected. This is likely the case if the project exhibits reliability at least equal to that of other power plants on that system.

The availability factor for a power plant is the percentage of the time that it is available to generate power; both planned and unplanned outages subtract from its availability.

Measures of power plant reliability are based on its actual ability to generate power when it is considered available and are based on starting failures and unplanned, or forced, outages. For practical purposes, reliability can be considered a combination of these two industry measures, making a reliable power plant one that is available when called upon to operate. Throughout its intended 30-year life (VSE 2005b, AFC § 2.3.1, 10.2.2), the SVEP will be expected to perform reliably. Power plant systems must be able to operate for extended periods without shutting down for maintenance or repairs. Achieving this reliability is accomplished by ensuring adequate levels of equipment availability, plant maintainability with scheduled maintenance outages, fuel and water availability, and resistance to natural hazards. Staff examines these factors for the project and compares them to industry norms. If they compare favorably, staff can conclude that the SVEP will be as reliable as other power plants on the electric system, and will therefore not degrade system reliability.

EQUIPMENT AVAILABILITY

Equipment availability will be ensured by use of appropriate quality assurance/ quality control (QA/QC) programs during design, procurement, construction and operation of the plant, and by providing for adequate maintenance and repair of the equipment and systems (discussed below).

Quality Control Program

The applicant describes a QA/QC program (VSE 2005b, AFC § 2.3.5.2) typical of the power industry. Equipment will be purchased from qualified suppliers, based on technical and commercial evaluations. Suppliers' personnel, production capability, past performance, QA programs and quality history will be evaluated. The project owner will perform receipt inspections, test components, and administer independent testing contracts. Staff expects implementation of this program to yield typical reliability of design and construction. To ensure such implementation, staff has proposed appropriate conditions of certification under the portion of this document entitled **Facility Design**.

PLANT MAINTAINABILITY

Equipment Redundancy

A generating facility called on to operate for long periods of time must be capable of being maintained while operating. A typical approach for achieving this is to provide redundant examples of those pieces of equipment most likely to require service or repair.

The applicant plans to provide appropriate redundancy of function for the project (VSE 2005b, AFC §§ 2.1.6, 2.1.8, 2.1.13.3, 2.3.2.1, 2.3.2.1.1, 2.3.2.3, 2.3.2.4, 2.3.2.5, 2.3.2.6; Table 2.3-1). The fact that the project consists of five combustion turbine-generators configured as independent equipment trains provides inherent reliability. A single equipment failure cannot disable more than one train, thus allowing the plant to continue to generate (at reduced output). Further, all plant ancillary systems are also designed with adequate redundancy to ensure continued operation in the face of equipment

failure. Staff believes that equipment redundancy will be sufficient for a project such as this.

Maintenance Program

The applicant proposes to establish a preventive plant maintenance program typical of the industry (VSE 2005b, AFC §§ 2.3.1, 2.3.5.2, 6.3, 10.2.2). Equipment manufacturers provide maintenance recommendations with their products; the applicant will base its maintenance program on these recommendations. The program will encompass preventive and predictive maintenance techniques. Maintenance outages will be planned for periods of low electricity demand. In light of these plans, staff expects that the project will be adequately maintained to ensure acceptable reliability.

FUEL AND WATER AVAILABILITY

For any power plant, the long-term availability of fuel and of water for cooling or process use is necessary to ensure reliability. The need for reliable sources of fuel and water is obvious; lacking long-term availability of either source, the service life of the plant may be curtailed, threatening the supply of power as well as the economic viability of the plant.

Fuel Availability

The SVEP will burn natural gas from the Southern California Gas Company (SoCalGas) system. Natural gas fuel will be supplied to the project via a new 12-inch diameter 750 foot long interconnection from one or more of the three existing 30-inch diameter high pressure SoCalGas pipelines in an easement in Menifee Road, to the east of the site. This natural gas system represents a resource of considerable capacity and offers access to adequate supplies of gas from the Rocky Mountains, Canada and the Southwest. In times of extreme peak demand, an adequate supply of gas will depend on imports to the SoCalGas system at the Otay Mesa receipt point, where regasified LNG from Sempra's Costa Azul LNG facility in Baja California, Mexico enters California. This facility is currently under construction, and is projected to be in commercial operation by January 2008, before the SVEP will need its gas (VSE 2005b, AFC §§ 1.1, 1.2, 2.0, 2.1.6, 2.3.3, 6.0, 10.2.1). Staff agrees with the applicant's prediction that there will be adequate natural gas supply and pipeline capacity to meet the project's needs.

Water Supply Reliability

The SVEP will use tertiary treated recycled water from the Eastern Municipal Water District for cooling tower makeup, evaporative inlet air cooling makeup, combustor water injection and landscape irrigation. A 20 foot long 12-inch diameter tap will convey this water from an existing supply pipeline north of the project site. A 150,000-gallon storage tank will hold reclaimed water for use in the event of supply interruptions. Potable water will also be supplied by the Eastern Municipal Water District via a 20 foot long 4-inch diameter tap line from the existing line north of the project site (VSE 2005b, AFC §§ 1.1, 2.0, 2.1.7.2, 2.1.7.3, 2.3.4, 7.1). The Eastern Municipal Water District has provided a will-serve letter acknowledging that it will be able to provide the required water (VSE 2005b, AFC §§ 2.0, 7.1; App. 7A). Staff believes these sources, combined with the onsite storage capacity, yield sufficient likelihood of a reliable supply of water. (For

further discussion of water supply, see the **Soil and Water Resources** section of this document.)

POWER PLANT RELIABILITY IN RELATION TO NATURAL HAZARDS

Natural forces can threaten the reliable operation of a power plant. High winds, tsunamis (tidal waves), seiches (waves in inland bodies of water), and flooding will not likely represent a hazard for this project, but seismic shaking (earthquake) may present a credible threat to reliable operation.

Seismic Shaking

The site lies within Seismic Zone 4 (VSE 2005b, AFC § 2.2.1); see that portion of this document entitled **Geology, Mineral Resources, and Paleontology**. The project will be designed and constructed to the latest appropriate LORS (VSE 2005b, AFC § 2.2.1; Table 10.4-1; App. 10). Compliance with current LORS applicable to seismic design represents an upgrading of performance during seismic shaking compared to older facilities, due to the fact that these LORS have been periodically and continually upgraded. By virtue of being built to the latest seismic design LORS, this project will likely perform at least as well as, and perhaps better than, existing plants in the electric power system. Staff has proposed conditions of certification to ensure this; see that portion of this document entitled **Facility Design**. In light of the historical performance of California power plants and the electrical system in seismic events, staff believes there is no special concern with power plant functional reliability affecting the electric system's reliability due to seismic events.

Flooding

The site does not lie within either a 100-year or a 500-year floodplain (VSE 2005b, AFC § 2.2.1). Staff believes there are no concerns with power plant functional reliability due to flooding. For further discussion, see **Soil and Water Resources** and **Geology and Paleontology**.

COMPARISON WITH EXISTING FACILITIES

Industry statistics for availability factors (as well as many other related reliability data) are kept by the North American Electric Reliability Council (NERC). NERC continually polls utility companies throughout the North American continent on project reliability data through its Generating Availability Data System (GADS), and periodically summarizes and publishes the statistics on the Internet (http://www.nerc.com). NERC reports the following summary generating unit statistics for the years 1999 through 2003 (NERC 2005):

For Gas Turbine units (All MW sizes):

Equivalent Availability Factor = 88.37 percent

The gas turbines that will be employed in the project are new on the market. GE is pursuing a development program for the LMS100 that is nearly unprecedented[1] in the

[1] GE has taken this same approach on the initial Frame 7H machines being installed at the nearby Inland Empire Energy Center project.

gas turbine industry. New turbines typically undergo only systems tests during development, leaving final testing and shakedown to the initial commercial units. After the costly debacle that attended the release of GE's Frame 7F machine in the mid-1990s, GE has now committed to build and own the initial LMS100 power plant itself. Only after the machine has been thoroughly tested and proven will GE sell this initial plant to its ultimate owner, and proceed to deliver LMS100 machines to additional customers. That first machine, destined for the Basin Electric Power Cooperative's Groton, SD station, was delivered in late 2005 and is scheduled to be turned over to its new owner in summer 2006 (POWER 2005, Morton 2004).

The applicant's prediction of an equivalent availability factor of 92 to 98 percent (VSE 2005b, AFC §§ 2.3.1, 10.2.2) appears reasonable compared to the NERC figure for similar plants throughout North America (see above) and in light of the development program being undertaken. In fact, these new machines can well be expected to outperform the fleet of various (mostly older) gas turbines that make up the NERC statistics. Further, since the plant will consist of five parallel gas turbine generating trains, maintenance can be scheduled during those times of year when the full plant output is not required to meet market demand, typical of industry standard maintenance procedures. The applicant's estimate of plant availability, therefore, appears realistic. The stated procedures for assuring design, procurement and construction of a reliable power plant appear to be in keeping with industry norms, and staff believes they are likely to yield an adequately reliable plant.

NOTEWORTHY PROJECT BENEFITS

The applicant proposes to enhance power supply reliability in the Southern California electricity market by providing peaking power and power quality services, such as automatic generation control, during periods of high demand (hot summer days) (VSE 2005b, AFC §§ 1.4, 2.1.16, 9.1, 10.2.2, 10.3). The fact that the project consists of five combustion turbine generators configured as independent equipment trains provides inherent reliability. A single equipment failure cannot disable more than one train, thus allowing the plant to continue to generate (at reduced output).

Although the gas turbines that will be employed in the project are new on the market, they can be expected to exhibit typically high availability due to the unique program GE is pursuing to ensure a reliable machine. The applicant's prediction of an equivalent availability factor of 92 to 98 percent appears reasonable compared to the NERC figure for similar plants throughout North America (see above). Staff believes this should provide an adequate level of reliability.

CONCLUSION

VSE predicts an equivalent availability factor of 92 to 98 percent, which staff believes is achievable. Based on a review of the proposal, staff concludes that the plant would be built and operated in a manner consistent with industry norms for reliable operation. This should provide an adequate level of reliability. No conditions of certification are proposed.

PROPOSED CONDITIONS OF CERTIFICATION

No conditions of certification are proposed.

REFERENCES

VSE (Valle del Sol Energy, LLC). 2005b. Application for Certification for Sun Valley Energy Project, Volumes 1 and 2. Submitted to the California Energy Commission, December 1, 2005.

McGraw-Hill 1994 — McGraw-Hill Energy Information Services Group. Operational Experience in Competitive Electric Generation, an Executive Report, 1994.

Morton 2004 — E-mail from Andrew Morton, GE Power Regional Sales Manager, Western US, to Steve Baker, California Energy Commission staff, 12/8/04.

NERC 2005 — North American Electric Reliability Council. 1999-2003 Generating Availability Report.

POWER 2006 — *Power Engineering*, February 2006. Pages 9-10.

TRANSMISSION SYSTEM ENGINEERING

Sudath Arachchige and Mark Hesters

SUMMARY OF CONCLUSIONS

The proposed Sun Valley Energy Project (SVEP) outlet lines and termination are acceptable and would comply with all applicable laws, ordinances, regulations, and standards (LORS). The SVEP interconnection to the grid would require no additional new downstream transmission facilities other than those proposed by the applicant needing California Environmental Quality Act (CEQA) review.

- The adverse transmission system impacts can be mitigated by installation of Special Protection Systems (SPS), Wave traps, disconnect switches and replacement of breakers. These upgrades will mitigate the incremental overloads caused by the SVEP, along with all other pre-project overloads caused by generators ahead of the SVEP in the generation interconnection queue.
- The pre-project overloads caused by insufficient generation dispatch in South Orange County could be mitigated by committing Reliability Must Run (RMR) generation or by projects identified in the Southern California Edison (SCE) Annual Transmission Expansion Planning process.
- The proposed interconnecting facilities between the new Combustion Turbine Generators (CTG) and the SCE Valley substation including the step-up transformers and the 115kV overhead transmission line and terminations are adequate in accordance with good utility practices and are acceptable to staff according to engineering LORS.
- The applicant should comply with all conditions of certification contained in other technical sections regarding required environmental surveys and or protective measures for all three generation tie line options.

STAFF ANALYSIS

The Transmission System Engineering (TSE) analysis examines whether or not the facilities associated with the proposed interconnection conform to all applicable laws, ordinances, regulations and standards (LORS) required for safe and reliable electric power transmission. Additionally, under the California Environmental Quality Act, the Energy Commission must conduct an environmental review of the “whole of the action,” which may include facilities not licensed by the Energy Commission (California Code of Regulations, title 14, §15378). Therefore, the Energy Commission must identify the system impacts and necessary new or modified transmission facilities downstream of the proposed interconnection that are required for interconnection and represent the “whole of the action.”

Energy Commission staff rely on the interconnecting authority for the analysis of impacts on the transmission grid as well as the identification and approval of required new or modified facilities downstream from the proposed interconnection required as mitigation measures. The proposed SVEP would interconnect to Southern California

Edison (SCE) transmission network and requires analysis by SCE and approval of the California Independent System Operator (CA ISO).

Southern California Edison's Role

SCE is responsible for ensuring electric system reliability in the SCE system for addition of the proposed transmission modifications. SCE will provide the analysis and reports in their System Impact and Facilities studies, and their approval for the facilities and changes required in the SCE system for addition of the proposed transmission modifications.

CA ISO's Role

The CA ISO is responsible for ensuring electric system reliability for all participating transmission owners and is also responsible for developing the standards necessary to achieve system reliability. The CA ISO will review the studies of the SCE system to ensure adequacy of the proposed transmission interconnection. The CA ISO will determine the reliability impacts of the proposed transmission modifications on the SCE transmission system in accordance with all applicable reliability criteria. According to the CA ISO Tariffs, the CA ISO will determine the "Need" for transmission additions or upgrades downstream from the interconnection point to insure reliability of the transmission grid. The CA ISO will, therefore, review the System Impact Study (SIS) performed by SCE and/or any third party, provide their analysis, conclusions and recommendations, and issue a preliminary approval or concurrence letter to SCE. On completion of the SCE Facility Studies, the CA ISO will review the study results, provide their conclusions and recommendations and issue a final approval/disapproval letter for the interconnection of the proposed SVEP. The CA ISO may provide written and verbal testimony on their findings at the Energy Commission hearings.

Laws, Ordinances, Regulations and Standards

- California Public Utilities Commission (CPUC) General Order 95 (GO-95), "Rules for Overhead Electric Line Construction," formulates uniform requirements for construction of overhead lines. Compliance with this order ensures adequate service and safety to persons engaged in the construction, maintenance and operation or use of overhead electric lines and to the public in general.
- California Public Utilities Commission (CPUC) General Order 128 (GO-128), "Rules for Construction of Underground Electric Supply and Communications Systems," formulates uniform requirements and minimum standards to be used for underground supply systems to ensure adequate service and safety to persons engaged in the construction, maintenance and operation or use of underground electric lines and to the public in general.
- The National Electric Safety Code, 1999 provides electrical, mechanical, civil and structural requirements for overhead electric line construction and operation.
- NERC/WECC Planning Standards: The Western Electricity Coordinating Council (WECC) Planning Standards are merged with the North American Electric Reliability Council (NERC) Planning Standards and provide the system performance standards used in assessing the reliability of the interconnected system. These standards require the continuity of service to loads as the first priority and preservation of

interconnected operation as a secondary priority. Certain aspects of the NERC/WECC standards are either more stringent or more specific than the NERC standards alone. These standards provide planning for electric systems so as to withstand the more probable forced and maintenance outage system contingencies at projected customer demand and anticipated electricity transfer levels, while continuing to operate reliably within equipment and electric system thermal, voltage and stability limits. These standards include the reliability criteria for system adequacy and security, system modeling data requirements, system protection and control, and system restoration. Analysis of the WECC system is based to a large degree on Section I.A of the standards, "NERC and WECC Planning Standards with Table I and WECC Disturbance-Performance Table" and on Section I.D, "NERC and WECC Standards for Voltage support and Reactive Power". These standards require that the results of power flow and stability simulations verify defined performance levels. Performance levels are defined by specifying the allowable variations in thermal loading, voltage and frequency, and loss of load that may occur on systems during various disturbances. Performance levels range from no significant adverse effects inside and outside a system area during a minor disturbance (loss of load or a single transmission element out of service) to a level that seeks to prevent system cascading and the subsequent blackout of islanded areas during a major disturbance (such as loss of multiple 500 kV lines along a common right of way, and/or multiple generators). While controlled loss of generation or load or system separation is permitted in certain circumstances, their uncontrolled loss is not permitted (WECC 2002).

- North American Reliability Council (NERC) Reliability Standards for the Bulk Electric Systems of North America provide national policies, standards, principles and guidelines to assure the adequacy and security of the electric transmission system. The NERC Reliability standards provide for system performance levels under normal and contingency conditions. With regard to power flow and stability simulations, while these Reliability Standards are similar to NERC/WECC Standards, certain aspects of the NERC/WECC standards are either more stringent or more specific than the NERC standards for Transmission System Contingency Performance. The NERC Reliability standards apply not only to interconnected system operation but also to individual service areas (NERC 2006).
- CA ISO Planning Standards also provide standards, and guidelines to assure the adequacy, security and reliability in the planning of the CA ISO transmission grid facilities. The CA ISO Grid Planning Standards incorporate the NERC/WECC and NERC Reliability Planning Standards. With regard to power flow and stability simulations, these Planning Standards are similar to the NERC/WECC or NERC Reliability Planning Standards for Transmission System Contingency Performance. However, the CA ISO Standards also provide some additional requirements that are not found in the WECC/NERC or NERC Standards. The CA ISO Standards apply to all participating transmission owners interconnecting to the CA ISO controlled grid. They also apply when there are any impacts to the CA ISO grid due to facilities interconnecting to adjacent controlled grids not operated by the CA ISO (CA ISO 2002a).

PROJECT DESCRIPTION

The proposed SVEP is a simple-cycle power generating facility that would be located near Romeland in Riverside County, California. The SVEP will consist of five combustion turbine generators (CTG) each with a gross output of 105 MW and with a nominal total output of 500 MW. Each generating unit will be connected to a dedicated 78/104/130 MVA stepup 13.8/115kV transformer and the high voltage terminals of the transformer will be connected the SVEP switchyard 115kV bus through a gas insulated (SF6) circuit breaker and a disconnect switch. The main bus of the SVEP switchyard would radially connect to SCE's Valley substation via two 600 feet long, 115kV transmission lines. The two 115kV, 795 SSAC (Steel Supported Aluminum Conductor) interconnection transmission lines will require two conductor support towers which would be located adjacent to the Valley substation within SCE's existing transmission corridor easement. (SVEP 2005b, AFC-section 2.1 .5 and 5-1).

Additionally, SCE has proposed two new generation tie-line options for a total of three alternate routes for the interconnection of the SVEP switchyard to the 115kV bus of the Valley substation (CH2M Hill, 2006h, Supplement IV, Figure WSQ 8):

1. 600 foot long, 115kV transmission line connecting the main bus of the SVEP switchyard to SCE's Valley substation.
2. 900 foot long 115kV transmission line connecting the main bus of the SVEP switchyard to SCE's Valley substation using SCE's existing transmission corridor adjacent to the Valley substation.
3. 950 foot long 115kV transmission line connecting the main bus of the SVEP switchyard to SCE's Valley substation using SCE's existing transmission corridor adjacent to the Valley substation.

Transmission System Impact Analysis

For the interconnection of a proposed generating unit or transmission facility to the grid, the interconnecting utility (SCE) and the control area operator CA ISO are responsible for insuring grid reliability. These entities determine the transmission system impacts of the proposed project, and any mitigation measures needed to insure system conformance with performance levels required by utility reliability criteria, NERC planning standards, WECC reliability criteria, and CA ISO reliability criteria. A System Impact Study (SIS) and a Facilities Study (FS) are used to determine the impacts of the proposed project on the transmission grid. Staff relies on the studies and any review conducted by the responsible agency to determine the effect of the project the transmission grid and to identify any necessary downstream facilities or indirect project impacts required to bring the transmission network into compliance with applicable reliability standards.

The System Impact and Facilities Studies analyze the grid with and without the proposed project under conditions specified in the planning standards and reliability criteria. The standards and criteria define the assumptions used in the study and establish the thresholds through which grid reliability is determined. The studies must analyze the impact of the project for the proposed first year of operation and thus are based on a forecast of loads, generation and transmission. Load forecasts are

developed by the interconnected utility. Generation and transmission forecasts are established by an interconnection queue. The studies are focused on thermal overloads, voltage deviations, system stability (excessive oscillations in generators and transmission system, voltage collapse, loss of loads or cascading outages), and short circuit duties.

If the studies show that the interconnection of the project causes the grid to be out of compliance with reliability standards then the study will identify mitigation alternatives or ways in which the grid could be brought into compliance with reliability standards. When a project connects to the CA ISO controlled grid, both the studies and mitigation alternatives must be reviewed and approved by the CA ISO. If the CA ISO or interconnecting utility determines that the only feasible mitigation includes transmission modifications or additions which require CEQA review as the "whole of the action," the Energy Commission must analyze these modifications or additions according to CEQA requirements.

Scope of the System Impact Study (SIS)

The SIS was performed by SCE at the request of Edison Mission Energy to identify the transmission system impacts caused by the SVEP project on the SCE's 230/500kV system. The SIS included a Power Flow Study, Short Circuit Study, and Dynamic Stability Analysis (SVEP 2005a, SIS). The study modeled the proposed SVEP for a net output of 500 MW. The base cases included all approved Southern California Edison, Los Angeles Department of Water and Power and San Diego Gas and Electric major transmission projects. The detailed study assumptions have been described in the SIS (SVEP 2005a, SIS, Section II-Study Conditions and Assumptions). The Power Flow studies were conducted with and without the SVEP connected to the SCE grid at the Valley Substation using 2007 Summer Peak and 2008 Summer Off Peak base cases. The Power Flow study assessed the project's impact on thermal loading of the transmission lines and equipment. Dynamic stability studies were conducted with the SVEP to determine whether the SVEP would create instability in the system following certain selected outages. Short circuit studies were conducted with and without the SVEP to determine if the SVEP would result in overstressing existing substation facilities.

The SIS analyzed the proposed 600 foot interconnection to the Valley substation and the results of a change to either of the other interconnection options would not substantially affect the results of the study.

Power Flow Study Results and Mitigation

The SIS showed pre-existing overloads in the transmission network. The overloading problems affect transmission line facilities under single (N-1) and double (N-2) contingency conditions. Assuming that the pre-existing conditions are corrected the System Impact Study identified eight conditions that require mitigation for the connection of and power delivery from SVEP to SCE's transmission system. The proposed mitigation measures for the pre-project conditions involve replacing wave traps, replacing disconnect switches with higher ampacity ratings and committing RMR generation to mitigate overloads caused by the insufficient generation. Based on the

SIS results, there are no adverse impacts under normal condition of the 2007 Summer Peak Load case due to interconnection of the SVEP as proposed.

Serrano-Valley 500kV line: The pre-project base case (normal conditions) overload was exacerbated by the addition of the project.

Mitigation: The proposed upgrade replaces 3000A wave traps and Gas Insulated Substation risers with equipment with 4000A rating at both Serrano and Valley termination.

Etiwanda-San Bernardino 230kV line: The pre-project overload was exacerbated under the N-1 and N-2 contingency conditions.

Mitigation: The proposed upgrade is to replace two 1200A disconnect switches with switches with a higher rating of 2000A at the Etiwanda substation. The upgrade will accommodate the increased loading by the project and would occur within the fence line of an existing facility.

Devers-Vista No1. and No.2 230kV lines: The SVEP increases the post contingency loading on Devers-Vista No.1. and No.2 230kV lines under the N-1/N-2 contingency conditions.

Mitigation: The proposed upgrade is to install a Special Protection System (SPS) to mitigate the overloads on Devers-Vista No.1 and No.2 230kV lines.

Etiwanda-Vista 230kV line: The SVEP increases the pre-project loading on Etiwanda-San Bernardino 230kV line under the N-1/N-2 contingency conditions.

Mitigation: The proposed upgrade is to replace 2000A Wave trap at Etiwanda with a higher rating of 3000A.

Mira Loma-Walnut 230kV line: The SVEP increases the pre-project loading on Mira Loma-Walnut 230kV line under the N-1/N-2 contingency conditions.

Mitigation: The proposed upgrade is to remove the 2000A Wave trap at Etiwanda substation.

Transient Stability Study Results

The Dynamic Stability study for SVEP was conducted using a 2007 Heavy Summer base case to determine if the SVEP would create any adverse impact on the stable operation of the transmission grid following selected CA ISO category B (N-1) & C (N-2) outages (SVEP-2005, SIS). The results indicate there are no identified transient stability concerns on the transmission system following the selected disturbances, as outlined in the SIS for integration of the SVEP.

Post-Transient Power Flow Study Results

The post transient study did not indicate any voltage deviations from the SCE guidelines. (7% for single contingency outages and 10% for double contingency outages)

Short Circuit Study Results and Mitigation

Short circuit studies were performed to determine the degree to which the addition of the SVEP project increases fault duties at the SCE's substations, adjacent utility

substations, and the other 230-kV and 500-kV busses within the study area. The busses at which faults were simulated, the maximum three phase and single line-to-ground fault currents at these busses both without and with the SVEP project, and information on the breaker duties at each location are summarized in Table 6-1 of the System Impact Study report. (SVEPb-2005, SIS). The Short Circuit Study indicates that the addition of the SVEP increased fault currents at 22 substations, but would only require replacement of two 38.4kA, 500kV breakers at Mira Loma substation. The remaining breakers of the substations are adequate enough to withstand the post project incremental fault currents. The breaker replacement would occur within the fence line of the Mira Loma substation.

CONFORMANCE WITH LORS AND CEQA REVIEW

In this analysis the discussion of conformance with applicable LORS is used to identify potential impacts under CEQA. The SIS demonstrates that the SVEP would be reliably connected to the SCE system without any significant adverse impacts on the transmission facilities of the SCE and interconnecting neighboring systems. The interconnection, therefore, would conform to the NERC/WECC planning standards and SCE reliability criteria. The interconnection facilities for the SVEP would be built according to NESC standards and GO-95 Rules within the fence line of the SCE Valley substation. The facilities would be in accordance with good utility practices and acceptable to staff, and would have no significant or unmitigated environmental impacts requiring CEQA review.

CONCLUSIONS AND RECOMMENDATIONS

The proposed SVEP outlet lines and termination are acceptable and would comply with all applicable laws, ordinances, regulations, and standards. The SVEP interconnection to the grid would require no additional new downstream transmission facilities other than those proposed by the applicant needing CEQA review.

- The adverse transmission system impacts can be mitigated by installation of SPS, Wave traps, disconnect switches and replacement of breakers. These upgrades will mitigate the incremental overloads caused by the SVEP, along with all other pre-project overloads caused by generators ahead of the SVEP in the generation interconnection queue.
- The pre-project overloads caused by insufficient generation dispatch in South Orange County could be mitigated by committing Reliability Must Run generation or by projects identified in the Southern California Edison Annual Transmission Expansion Planning process.
- The proposed interconnecting facilities between the new Combustion Turbine Generators and the SCE Valley substation including the step-up transformers and the 115kV overhead transmission line and terminations are adequate in accordance with good utility practices and are acceptable to staff according to engineering LORS.

- The applicant should comply with all conditions of certification contained in other technical sections regarding required environmental surveys and or protective measures for all three generation tie line options.

RECOMMENDATIONS

If the Commission approves the project, staff recommends the following Conditions of Certification to insure system reliability and conformance with LORS.

CONDITIONS OF CERTIFICATION FOR TSE

TSE-1 The project owner shall furnish to the Compliance Project Manager (CPM) and to the Chief Building Officer (CBO) a schedule of transmission facility design submittals, a Master Drawing List, a Master Specifications List, and a Major Equipment and Structure List. The schedule shall contain a description and list of proposed submittal packages for design, calculations, and specifications for major structures and equipment. To facilitate audits by Energy Commission staff, the project owner shall provide the designated packages to the CPM when requested.

Verification: At least 60 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of construction, the project owner shall submit the schedule, a Master Drawing List, and a Master Specifications List to the CBO and to the CPM. The schedule shall contain a description and list of proposed submittal packages for design, calculations, and specifications for major structures and equipment (see a list of major equipment in **Table 1: Major Equipment List** below). Additions and deletions shall be made to the table only with CPM and CBO approval. The project owner shall provide schedule updates in the Monthly Compliance Report.

Table 1: Major Equipment List
Breakers
Step-up Transformer
Switchyard
Busses
Surge Arrestors
Disconnects
Take off facilities
Electrical Control Building
Switchyard Control Building
Transmission Pole/Tower
Grounding System

TSE-2 Prior to the start of construction the project owner shall assign an electrical engineer and at least one of each of the following to the project: A) a civil engineer; B) a geotechnical engineer or a civil engineer experienced and knowledgeable in the practice of soils engineering; C) a design engineer, who is either a structural engineer or a civil engineer fully competent and proficient

in the design of power plant structures and equipment supports; or D) a mechanical engineer. (Business and Professions Code Sections 6704 et seq., require state registration to practice as a civil engineer or structural engineer in California).

The tasks performed by the civil, mechanical, electrical or design engineers may be divided between two or more engineers, as long as each engineer is responsible for a particular segment of the project (e.g., proposed earthwork, civil structures, power plant structures, equipment support). No segment of the project shall have more than one responsible engineer. The transmission line may be the responsibility of a separate California registered electrical engineer. The civil, geotechnical or civil and design engineer assigned in conformance with Facility Design condition **GEN-5**, may be responsible for design and review of the TSE facilities.

The project owner shall submit to the CBO for review and approval, the names, qualifications and registration numbers of all engineers assigned to the project. If any one of the designated engineers is subsequently reassigned or replaced, the project owner shall submit the name, qualifications and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer. This engineer shall be authorized to halt earthwork and to require changes; if site conditions are unsafe or do not conform with predicted conditions used as a basis for design of earthwork or foundations.

The electrical engineer shall:

1. Be responsible for the electrical design of the power plant switchyard, outlet and termination facilities; and
2. Sign and stamp electrical design drawings, plans, specifications, and calculations.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, the names, qualifications and registration numbers of all the responsible engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the engineers within five days of the approval.

If the designated responsible engineer is subsequently reassigned or replaced, the project owner has five days in which to submit the name, qualifications, and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer within five days of the approval. [3/12/03]

TSE-3 If any discrepancy in design and/or construction is discovered in any engineering work that has undergone CBO design review and approval, the project owner shall document the discrepancy and recommend corrective

action. (1998 California Building Code, Chapter 1, Section 108.4, Approval Required; Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector; Appendix Chapter 33, Section 3317.7, Notification of Noncompliance]. The discrepancy documentation shall become a controlled document and shall be submitted to the CBO for review and approval and shall reference this condition of certification.

Verification: The project owner shall submit a copy of the CBO's approval or disapproval of any corrective action taken to resolve a discrepancy to the CPM within 15 days of receipt. If disapproved, the project owner shall advise the CPM, within five days, the reason for disapproval, and the revised corrective action required obtaining the CBO's approval.

TSE-4 For the power plant switchyard, outlet line and termination, the project owner shall not begin any increment of construction until plans for that increment have been approved by the CBO. These plans, together with design changes and design change notices, shall remain on the site for one year after completion of construction. The project owner shall request that the CBO inspect the installation to ensure compliance with the requirements of applicable LORS. The following activities shall be reported in the Monthly Compliance Report:

a) Receipt or delay of major electrical equipment;

b) Testing or energization of major electrical equipment; and

c) The number of electrical drawings approved, submitted for approval, and still to be submitted.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of each increment of construction, the project owner shall submit to the CBO for review and approval the final design plans, specifications and calculations for equipment and systems of the power plant switchyard, outlet line and termination, including a copy of the signed and stamped statement from the responsible electrical engineer attesting to compliance with the applicable LORS, and send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

TSE-5 The project owner shall ensure that the design, construction and operation of the proposed transmission facilities will conform to all applicable LORS, including the requirements listed below. The project owner shall submit the required number of copies of the design drawings and calculations as determined by the CBO.

a) The SVEP will be interconnected to the SCE grid via one of three alternative routes using two 115 kV single transmission circuits and 795 ACSS conductor:

1. 600 foot long, 115kV transmission line connecting the main bus of the SVEP switchyard to SCE's Valley substation.

2. 900 foot long 115kV transmission line connecting the main bus of the SVEP switchyard to SCE's Valley substation using SCE's existing transmission corridor adjacent to the Valley substation.
3. 950 foot long 115kV transmission line connecting the main bus of the SVEP switchyard to SCE's Valley substation using SCE's existing transmission corridor adjacent to the Valley substation.

b) The existing Valley Substation will require new 115kV breakers to facilitate interconnection of the SVEP.

c) The power plant outlet line shall meet or exceed the electrical, mechanical, civil and structural requirements of CPUC General Order 95 or National Electric Safety Code (NESC); Title 8 of the California Code and Regulations (Title 8); Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders", CA ISO standards, National Electric Code (NEC) and related industry standards.

d) Breakers and busses in the power plant switchyard and other switchyards, where applicable, shall be sized to comply with a short-circuit analysis.

e) Outlet line crossings and line parallels with transmission and distribution facilities shall be coordinated with the transmission line owner and comply with the owner's standards.

f) The project conductors shall be sized to accommodate the full output from the project.

g) Termination facilities shall comply with applicable SCE interconnection standards.

h) The project owner shall provide to the CPM:

   i) The final Detailed Facility Study (DFS) including a description of facility upgrades, operational mitigation measures, and/or Special Protection System (SPS) sequencing and timing if applicable,

   ii) Executed project owner and CA ISO Facility Interconnection Agreement.

i) A request for minor changes to the facilities described in this condition may be allowed if the project owner informs the CBO and CPM and receives approval for the proposed change. A detailed description of the proposed change and complete engineering, environmental, and economic rationale for the change shall accompany the request. Construction involving changed equipment or substation configurations shall not begin without prior written approval of the changes by the CBO and the CPM.

Verification: At least 60 days prior to the start of construction of transmission facilities (or a lessor number of days mutually agreed to by the project owner and CBO), the project owner shall submit to the CBO for approval:

a) Design drawings, specifications and calculations conforming with CPUC General Order 95 or National Electric Safety Code (NESC); Title 8 of the California Code and Regulations (Title 8); Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders", CA ISO standards, National Electric Code (NEC) and related industry standards, for the poles/towers, foundations, anchor bolts, conductors, grounding systems and major switchyard equipment.

b) For each element of the transmission facilities identified above, the submittal package to the CBO shall contain the design criteria, a discussion of the calculation method(s), a sample calculation based on "worst case conditions"[1] and a statement signed and sealed by the registered engineer in responsible charge, or other acceptable alternative verification, that the transmission element(s) will conform with CPUC General Order 95 or National Electric Safety Code (NESC); Title 8 of the California Code and Regulations (Title 8); Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders", CA ISO standards, National Electric Code (NEC) and related industry standards.

c) Electrical one-line diagrams signed and sealed by the registered professional electrical engineer in responsible charge, a route map, and an engineering description of equipment and the configurations covered by requirements **TSE-5** a) through f) above.

d) The final DFS, including a description of facility upgrades, operational mitigation measures, and/or SPS sequencing and timing if applicable, shall be provided concurrently to the CPM.

e) At least 60 days prior to the construction of transmission facilities, the project owner shall inform the CBO and the CPM of any impending changes which may not conform to the facilities described in this condition and request approval to implement such changes.

TSE-6 The project owner shall provide the following Notice to the California Independent System Operator (CA ISO) prior to synchronizing the facility with the California Transmission system:

1. At least one week prior to synchronizing the facility with the grid for testing, provide the CA ISO a letter stating the proposed date of synchronization; and

2. At least one business day prior to synchronizing the facility with the grid for testing, provide telephone notification to the ISO Outage Coordination Department.

Verification: The project owner shall provide copies of the CA ISO letter to the CPM when it is sent to the CA ISO one week prior to initial synchronization with the grid. The project owner shall contact the CA ISO Outage Coordination Department, Monday through Friday, between the hours of 0700 and 1530 at (916) 351-2300 at least one business day prior to synchronizing the facility with the grid for testing. A report of conversation with the CA ISO shall be provided electronically to the CPM one day before synchronizing the facility with the California transmission system for the first time.

TSE-7 The project owner shall be responsible for the inspection of the transmission facilities during and after project construction, and any subsequent CPM and CBO approved changes thereto, to ensure conformance with CPUC GO-95 or NESC, Title 8, California Code of Regulations, Articles 35, 36 and 37 of the, "High Voltage Electric Safety Orders", applicable interconnection standards, NEC and related industry standards. In case of non-conformance, the project owner shall inform the CPM and CBO in writing, within 10 days of discovering such non-conformance and describe the corrective actions to be taken.

Verification: Within 60 days after first synchronization of the project, the project owner shall transmit to the CPM and CBO:

a) "As built" engineering description(s) and one-line drawings of the electrical portion of the facilities signed and sealed by the registered electrical engineer in responsible charge. A statement attesting to conformance with CPUC GO-95 or NESC, Title 8, California Code of Regulations, Articles 35, 36 and 37 of the, "High Voltage Electric Safety Orders", and applicable interconnection standards, NEC, related industry standards, and these conditions shall be provided concurrently.

b) An "as built" engineering description of the mechanical, structural, and civil portion of the transmission facilities signed and sealed by the registered engineer in responsible charge or acceptable alternative verification. "As built" drawings of the electrical, mechanical, structural, and civil portion of the transmission facilities shall be maintained at the power plant and made available, if requested, for CPM audit as set forth in the "Compliance Monitoring Plan".

c) A summary of inspections of the completed transmission facilities, and identification of any nonconforming work and corrective actions taken, signed and sealed by the registered engineer in charge.

REFERENCES

CA ISO (California Independent System Operator). 1998a. CA ISO Tariff Scheduling Protocol posted April 1998, Amendments 1,4,5,6, and 7 incorporated.

CA ISO (California Independent System Operator). 1998b. CA ISO Dispatch Protocol posted April 1998.

CA ISO (California Independent System Operator). 2002a. CA ISO Grid Planning Standards, February 2002.

CH2M Hill 2006h. Supplement IV in Response to Data Requests 1-80, and Workshop Questions from April 25, 2006 for the Sun Valley Energy Project (05-AFC-3).. Submitted to the California Energy Commission on November 13, 2006.

SCE (Southern California Edison Company. 2005a. Edison Mission Energy Sun Valley Generating Facility: System Impact Study. September 22, 2005. In VSE 2005b, Volume 2, Appendix 5.

VSE (Valle del Sol Energy, LLC). 2005b. Application for Certification for Sun Valley Energy Project, Volumes 1 and 2. Submitted to the California Energy Commission, December 1, 2005.

NERC/WECC (North American Reliability Council / Western Electricity Coordinating Council), 2002. NERC/WECC Planning Standards, August 2002.

DEFINITION OF TERMS

AAC — All Aluminum conductor.

ACSR — Aluminum Conductor Steel-Reinforced.

SSAC — Steel-Supported Aluminum Conductor.

Ampacity — Current-carrying capacity, expressed in amperes, of a conductor at specified ambient conditions, at which damage to the conductor is nonexistent or deemed acceptable based on economic, safety, and reliability considerations.

Ampere — The unit of current flowing in a conductor.

Bundled — Two wires, 18 inches apart.

Bus — Conductors that serve as a common connection for two or more circuits.

Conductor — The part of the transmission line (the wire) that carries the current.

Congestion Management — Congestion management is a scheduling protocol, which provides that dispatched generation and transmission loading (imports) will not violate criteria.

Emergency Overload — See Single Contingency. This is also called an L-1.

Kcmil or KCM — Thousand circular mil. A unit of the conductor's cross sectional area, when divided by 1,273, the area in square inches is obtained.

Kilovolt (kV) — A unit of potential difference, or voltage, between two conductors of a circuit, or between a conductor and the ground.

Loop — An electrical cul de sac. A transmission configuration that interrupts an existing circuit, diverts it to another connection and returns it back to the interrupted circuit, thus forming a loop or cul de sac.

Megavar — One megavolt ampere reactive.

Megavars — Mega-volt-Ampere-Reactive. One million Volt-Ampere-Reactive. Reactive power is generally associated with the reactive nature of motor loads that must be fed by generation units in the system.

Megavolt ampere (MVA) — A unit of apparent power, equals the product of the line voltage in kilovolts, current in amperes, the square root of 3, and divided by 1000.

Megawatt (MW) — A unit of power equivalent to 1,341 horsepower.

Normal Operation/ Normal Overload — When all customers receive the power they are entitled to without interruption and at steady voltage, and no element of the transmission system is loaded beyond its continuous rating.

N-1 Condition — See Single Contingency.

Outlet — Transmission facilities (circuit, transformer, circuit breaker, etc.) linking generation facilities to the main grid.

Power Flow Analysis
: A power flow analysis is a forward looking computer simulation of essentially all generation and transmission system facilities that identifies overloaded circuits, transformers and other equipment and system voltage levels.

Reactive Power
: Reactive power is generally associated with the reactive nature of motor loads that must be fed by generation units in the system. An adequate supply of reactive power is required to maintain voltage levels in the system.

Remedial Action Scheme (RAS)
: A remedial action scheme is an automatic control provision, which, for instance, will trip a selected generating unit upon a circuit overload.

SF6
: Sulfur hexafluoride is an insulating medium.

Single Contingency
: Also known as emergency or N-1 condition, occurs when one major transmission element (circuit, transformer, circuit breaker, etc.) or one generator is out of service.

Solid dielectric cable
: Copper or aluminum conductors that are insulated by solid polyethylene type insulation and covered by a metallic shield and outer polyethylene jacket.

Switchyard
: A power plant switchyard (switchyard) is an integral part of a power plant and is used as an outlet for one or more electric generators.

Thermal rating
: See ampacity.

TSE
: Transmission System Engineering.

Tap
: A transmission configuration creating an interconnection through a sort single circuit to a small or medium sized load or a generator. The new single circuit line is inserted into an existing circuit by utilizing breakers at existing terminals of the circuit, rather than installing breakers at the interconnection in a new switchyard.

Undercrossing
: A transmission configuration where a transmission line crosses below the conductors of another transmission line, generally at 90 degrees.

Underbuild
: A transmission or distribution configuration where a transmission or distribution circuit is attached to a transmission tower or pole below (under) the principle transmission line conductors.

ALTERNATIVES

Stanley Yeh

INTRODUCTION

Staff's alternatives analysis considers whether there are alternatives that could feasibly attain most of the basic objectives of the proposed Sun Valley Energy Project (SVEP) and avoid or substantially lessen one or more of the significant effects of the proposed project. If the Energy Commission determines that the proposed project will result in significant adverse impacts and identifies an alternative that meets these criteria, it cannot license the proposed project unless it finds that the benefits of the proposed project outweigh the impacts and that the alternative is infeasible. However, the Energy Commission does not have the authority to approve alternative configurations, require alternative technology designs, or to require the applicant to move the proposed project to another location without first conducting a more in-depth review of the environmental consequences of the alternative. If the applicant moves its proposed project to one of the alternative sites, Energy Commission staff will analyze any new site at the same level of detail as the original.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

Energy Commission staff is required to examine the "feasibility of available site and facility alternatives to the applicant's proposal which substantially lessen the significant adverse impacts of the proposal on the environment" (Cal. Code Regs., tit. 20, §1765).

The "Guidelines for Implementation of the California Environmental Quality Act," Title 14, California Code of Regulations Section 15126.6(a), requires an evaluation of the comparative merits of "a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project." In addition, the analysis must address the No Project Alternative (Cal. Code Regs., tit. 14, §15126.6(e)). The analysis should identify and compare the impacts of the various alternatives, but analysis of alternatives need not be in as much detail as the analysis of the proposed project.

The range of alternatives is governed by the "rule of reason," which requires consideration only of those alternatives necessary to permit informed decision-making and public participation. The California Environmental Quality Act (CEQA) states that an environmental document does not have to consider an alternative if its effect cannot be reasonably ascertained and if its implementation is remote and speculative (Cal. Code Regs., tit. 14, §15126.6(f)(3)). However, if the range of alternatives is defined too narrowly, the analysis may be inadequate (City of Santee v. County of San Diego (4th Dist. 1989) 214 Cal. App. 3d 1438).

APPROACH

This alternatives analysis uses the following approach, based on guidance in the CEQA Deskbook (Bass et al. 1999, p. 108):

- Describe the project objectives;
- Assess the proposed project's significant environmental effects;
- Develop screening criteria for feasibility of alternatives;
- Consider a broad range of alternatives, including the No Project Alternative, and select a reasonable range of alternatives that:
  - Meet some or all of the project objectives;
  - May be located on alternative sites;
  - Substantially avoid or lessen one or more of the potential significant effects of the project; and
  - Are feasible based on specific economic, social, legal, or technical considerations.
- Explain why other alternatives have been rejected from evaluation;
- Provide meaningful evaluation and analysis of environmental impacts of the reasonable range of alternatives and the No Project Alternative in comparison with environmental effects of the proposed project; and
- Identify the environmentally superior alternative.

PROJECT OBJECTIVES

Section 9 (VSE 2005b, pps.1-2, and 9-1, 9-2) of the Application for Certification (AFC) identifies the project objectives for the SVEP. These are to:

- Provide the most efficient peaking capacity available to the southern California market cost effectively;
- Provide peaking power to the grid to help meet the demand for electricity;
- Minimize or eliminate the length of any project linear facilities, including
  - Gas and water supply lines;
  - Discharge lines; and
  - Transmission interconnections.
- Help replace less efficient fossil fuel generation resources; and
- Enhance the reliability of the electrical system by providing peaking power generation near the centers of electrical demand.

The applicant has identified the newly available General Electric (GE) Energy LMS100 natural gas-fired turbine-generator as the most efficient technology available in the current market.

SUMMARY DESCRIPTION OF PROPOSED PROJECT

The proposed project site is located in an unincorporated rural area approximately 2.5 miles northeast of unincorporated Sun City and 1.3 miles southeast of unincorporated Romoland in Riverside County. The site address is 29500 Rouse Road. It covers approximately 22.89 acres, including 4.0 acres of construction laydown area. The proposed project site is currently in agricultural use and zoned Manufacturing-Service Commercial. Immediately adjacent land to the west, northeast, and southeast of the proposed project site is also in agricultural use or is undeveloped open space. East of the site, across Menifee Road, is the Menifee Valley Ranch residential subdivision currently under construction. Much of the area within a 1-mile radius has been, or is being, developed into residential, commercial, and industrial land uses. The proposed project site will be owned and operated by Valle del Sol Energy, LLC (VSE), a wholly owned subsidiary of Edison Mission Energy.

Southern California Edison's (SCE) Valley Substation is located approximately 600 feet north of the proposed project site, across railroad tracks operated by Burlington Northern Santa Fe (BNSF). The applicant's preferred transmission line would connect with the SCE Valley Substation via two 600-foot, 115kV transmission lines that will run north from the SVEP to the southern portion of the Valley Substation. These lines will require one off-site conductor support tower which would be located adjacent to the Valley substation within SCE's existing transmission corridor easement. (SVEP 2005b, AFC-section 2.1 .5 and 5-1).

SCE is considering requiring the project to enter the substation further to the east, which would entail an adjustment to the alignment from the project site to the substation entry point. In the event that SCE does require the more eastern entry, the applicant would use one of two new generation tie-line options (See Alternatives Figure 1) to interconnect the SVEP switchyard to the 115kV bus of the Valley substation:

- Alternative Transmission Line A:A 900 foot long 115kV line with 795 ACSS conductor would be built on three support monopole towers along SCE's existing transmission corridor adjacent to Valley substation.
- Alternative Transmission Line B: A 950 foot long 115kV line with 795 ACSS conductor would be built on 4 support monopole towers along SCE's existing transmission corridor adjacent to Valley substation.

The choice of alternatives will be considered during SCE's final design stage and would be made based upon the relocation of other lines entering the substation.

Additional infrastructure on or adjacent to the proposed project site that would serve the SVEP includes a high-pressure natural gas transmission line, a recycled water supply line, potable water, and a sanitary sewer trunk line. The terrain in the site vicinity is relatively flat. VSE would need to construct an approximately 0.75 mile non-reclaimable water line to a point of intersection with a line constructed for the Inland Empire Energy

Center (IEEC), currently under construction, which will convey the process waste water to Orange County for eventual treatment and discharge to an ocean outfall.

There are currently two open and operating schools located within a 1-mile radius of the proposed project site, the Boulder Ridge K-8 School which is approximately 0.52 mile south, and the Romoland Elementary School which is approximately 0.89 mile northwest of the proposed SVEP site. A third elementary school, Mesa View, is planned to open in Fall 2007, approximately 0.67 mile to the southeast.

POTENTIAL SIGNIFICANT ENVIRONMENTAL IMPACTS AND AREAS OF IDENTIFIED PUBLIC CONCERN

In this PSA, staff has identified that with the implementation of the proposed mitigation measures and the anticipated Conditions of Certification for the SVEP, the project will have no significant unmitigated environmental impacts associated with the construction or operation of the project. Staff's detailed assessments of the expected environmental consequences of the proposed project are discussed in the individual technical sections of the PSA.

IDENTIFICATION AND SCREENING OF ALTERNATIVES

Staff used a two-stage process to select alternatives for analysis. First a reasonable range of alternatives was identified. Next, these alternatives were screened to select those that qualified for detailed evaluation. Staff considered alternatives to the proposed project that were identified by several sources, including the applicant, previous environmental documents, and Energy Commission staff.

This PSA presents analysis of two site alternatives suggested by the applicant and the No Project alternative. No additional alternative sites were found by staff that fully met the project objectives.

This PSA also describes alternatives that were eliminated from detailed consideration and presents an explanation of why these alternatives were not analyzed. These alternatives can be found in Appendix A to this section. The following non-site technology alternatives were eliminated from detailed consideration due to lack of land availability, resources, or inability to provide the most efficient peaking capacity, as detailed in Appendix A:

- Conservation and Demand-Side Management;
- Hydroelectric and Geothermal Generation;
- Biomass Generation;
- Solar Generation;
- Wind Generation.

CONSIDERATION OF ALTERNATIVE SITES

For comparison purposes, and to meet the requirements of the California Environmental Quality Act (CEQA) and Title 20, alternative sites were identified that could feasibly attain most of the proposed project's basic objectives.

According to the AFC, the applicant used the criteria listed below to identify the proposed project site and alternatives. Staff believes these criteria are appropriate for a screening level analysis of proposed project site alternatives. The primary criteria include the following factors:

- Location more than 1,000 feet from the nearest residential areas;
- Location near the centers of demand for maximum efficiency and system benefit;
- Land zoned for industrial use;
- Access to tertiary treated wastewater from the Eastern Municipal Water District (EMWD) for cooling water;
- Location near electrical transmission facilities;
- Location near reliable natural gas supply;
- A parcel or adjoining parcels of sufficient size for a power plant and construction laydown areas;
- Site control (lease or ownership) feasibility;
- Minimize construction impacts to existing residences and businesses; and
- Feasible mitigation of potential environmental impacts.

Based on these factors, two alternative sites have been evaluated and compared. Alternative A is referred to as San Jacinto Road site, and Alternative B is referred to as Dawson Road site. In addition to these two sites, the No Project alternative has been evaluated.

ALTERNATIVES Figure 1 shows the location of the proposed SVEP and the alternatives evaluated in this PSA.

COMPARATIVE EVALUATION OF ALTERNATIVE SITES

ALTERNATIVE A: SAN JACINTO ROAD

Site Description

The San Jacinto Road site is an approximately 26-acre area between the communities of unincorporated Romoland and Sun City in Riverside County, just south of Matthews Road, north of McLaughlin Road, and adjacent to the eastern boundary of the Inland Empire Energy Center (IEEC) power plant project currently under construction. This alternative is located approximately 0.23 mile northwest of the proposed project site and is zoned for Heavy Industrial development. The northwest corner of the San Jacinto Road site is currently being used for storage and contains large piles of asphalt and concrete and other construction waste. The southern part of this alternative site is currently in agricultural production.

The area is made up of multiple parcels with several different landowners. A residential community is also located approximately 0.17 mile north of this alternative site. Property to the north and east is in industrial and commercial land uses. Land to the west and south is currently vacant. Two schools are located within 1 mile of the San Jacinto Road site: Romoland Elementary School, located approximately 0.4 mile northwest of this alternative site and Perris Union High School, located approximately 0.9 mile west of this alternative site. Motte Field Park is located approximately 0.29 mile north-northwest of this alternative site.

Infrastructure Availability

The Valley substation is located approximately 0.29 mile east of this alternative site. It would require an interconnection that would extend along an existing SCE 500-kilovolt (kV) and 115-kV easement for approximately 0.5 mile. Natural gas service is located in Menifee Road, approximately 0.51 mile east of the alternative site and is expected to serve the IEEC along McLaughlin Road which is at the southern border of this alternative site. A recycled water supply is also available from the Eastern Municipal Water District's (EMWD) pipeline in McLaughlin Road.

Environmental Assessment for Alternative A: San Jacinto Road

Air Quality: The quantity of emissions from proposed project operation would be the same at the San Jacinto Road site. Both sites have similar contributions to the regional airshed and would, therefore, be subject to similar review, emission reduction crediting, and permitting requirements. The differences between the sites in terms of their distances from the nearest residences should not make a significant difference in air quality impacts at these residences. Mitigation would be required to bring any potential impacts to a level that is less than significant. Impacts to air quality at the proposed project site and the San Jacinto Road site would be similar.

Biological Resources: The San Jacinto Road site, like the proposed project site, does not provide good habitat for fish, wildlife, or sensitive plant species. Both are in or have recently been in agricultural use. A drainage feature that is tributary to or part of Ethanac Wash runs along the southern boundary of the San Jacinto Road site. The jurisdictional status of this feature has not been formally determined by the United

States Army Corps of Engineers (USACE) and it will, at some point, be replaced by a box culvert. In the meantime, seasonal ponds along or near this drainage feature on the San Jacinto Road site provide habitat for the federally threatened vernal pool fairy shrimp (Branchinecta lynchii). Development on this alternative site would therefore require a Clean Water Act Section 404 permit to fill wetlands and also consultation with the United States Fish and Wildlife Service (USFWS) regarding endangered species. Both sites are located within the federal and state listed Stephens' kangaroo rat fee area. Impacts to biological resources are potentially greater at the San Jacinto Road site in comparison to the proposed project site.

Cultural Resources: There are no known cultural resources at either the proposed project site or the San Jacinto Road site. As both sites are previously undeveloped, there is an unknown possibility of finding cultural resources. Because mitigation measures would address the treatment and protection of cultural resources, it is reasonable to assume that both sites have approximately the same cultural resources sensitivity, and that potential impacts would be less than significant.

Geological Resources and Hazards: There would be no significant differences between the proposed project site and this alternative site in terms of geological resources and hazards. As with the proposed SVEP location, there are no geological resources located on or near this site. Impacts to geological resources and hazards would be similar at the San Jacinto Road site and the proposed project site.

Hazardous Materials Handling: There would be no significant difference between the site locations in terms of hazardous materials handling. The quantities of hazardous materials and approximate delivery routes would be the same for both the proposed project site and the San Jacinto Road site. While there might be differences in the distances that trucks carrying hazardous materials would travel to deliver the materials, these differences would be minor. Impacts to hazardous materials handling would be similar at the San Jacinto Road site and the proposed project site.

Land Use: Both the proposed project site and the San Jacinto Road site are currently zoned for industrial use. The proposed project site is zoned manufacturing/service commercial and the San Jacinto Road site is zoned for heavy industry. Each of these is an appropriate zoning for a peaking power plant. Dense and existing residential uses are located about 1,000 feet from the San Jacinto Road site, along State Route 74. The nearest existing dense residential development to the proposed project site is approximately 3,000 feet to the south. The Menifee Valley Ranch development, however, is under construction and will include residential and commercial uses approximately 1,000 feet east from the proposed project site. The San Jacinto Road site is privately owned and has multiple owners, thereby making site control less feasible and more difficult to attain as many differing views or planned developments may exist. The northwest corner of the San Jacinto Road site is currently being used for storage and contains large piles of asphalt and concrete and other construction waste. In contrast, VSE currently has an option agreement to purchase the proposed project site. Impacts to land use are similar at the San Jacinto Road site and the proposed project site.

Noise: The proposed project and San Jacinto Road sites have sufficient distance from residential receptors that they would be able to meet the County noise standards with the application of standard controls. There could be cumulative impact noise issues with

the San Jacinto Road site because of it's proximity to the IEEC, which is under construction. Impacts to noise are potentially greater at the San Jacinto Road site in comparison to the proposed project site.

Paleontology: There would be no significant differences between the proposed project site and the San Jacinto Road site in terms of potential effects on paleontological resources. None of the sites are at a known paleontological find location, although significant Pleistocene fossils have been found nearby in similar alluvial deposits. The probability of encountering significant fossils is approximately the same at both sites. Impacts to paleontology are similar at the San Jacinto Road site and the proposed project site.

Public Health: The proposed project site and the San Jacinto Road site are not located within 1,000 feet of any schools. Additionally, public health impacts are generally related to air quality, which are not expected to result in significant impacts. At a screening level, both sites appear to be equivalent with respect to potential impacts. Therefore, the potential for public health effects from a power plant located at the proposed project site or the San Jacinto Road site is approximately the same.

Socioeconomics: Both the proposed project site and the San Jacinto Road site are located in Riverside County. The number of workers, construction costs, payroll, and property tax revenues would be nearly the same for both sites. Most workers would commute daily or weekly to the plant site. Should some workers move with their families to the local area during construction, this may cause temporary impacts to schools, utilities, and emergency services. These impacts would most likely be temporary. Disproportionate impacts to minority and low income populations would be unlikely since minority populations are not concentrated in an area or areas that are also high potential impact areas. The project is not likely to cause significant adverse public health impacts to areas that are disproportionately minority or low income. Impacts to socioeconomics are similar at the San Jacinto Road site and the proposed project site.

Soils and Agriculture: There would not be significant differences between the San Jacinto Road site and the proposed project site in terms of their potential effects on soils and agriculture. Both sites would not result in the loss of prime or unique farmlands or farmlands of statewide importance. The proposed project site and the southern part of the San Jacinto Road site are currently in non-irrigated agricultural production. However, conversion of this farmland to manufacturing uses in an area zoned for manufacturing is not an adverse impact. Impacts to soils and agriculture would be similar at the proposed project site and the San Jacinto Road site.

Traffic and Transportation: The number of employees working at a given time during project operation (approximately 3) will not significantly impact local traffic conditions at either the proposed project site or the San Jacinto Road site. The peak number of employees during construction (228) will have much more impact than the impact during operation, but the impact will be temporary, and can be mitigated by transportation management planning. The effect of construction-phase traffic, therefore, should not figure as a major consideration in evaluating or comparing the sites, which are similar from the perspective of existing traffic conditions. Impacts to traffic and transportation are similar at the San Jacinto Road site and the proposed project site.

Visual Resources: Neither the proposed project site nor the San Jacinto Road site are located in an area with protected viewshed or in a designated viewshed corridor. The visual effects are therefore roughly the same. The proposed project site will be visible from the nearby residential area of Menifee Valley Ranch. This view will eventually be substantially blocked, however, by planned industrial development between Menifee Road and the proposed project site. A residential community is located approximately 0.17 mile north of the San Jacinto Road site, but views are not anticipated to be significantly altered by the proposed project. Both sites will not be particularly visible from within the residential development. It is possible that water vapor plumes would be visible from second story windows on residential developments. However, since plume formation typically occurs at times when ambient temperatures are low, there is little potential for plume formation during the high temperature periods when the plant is most likely to be in operation. Impacts to visual resources are similar at the proposed project site and the San Jacinto Road site.

Water Resources: Both the proposed project site and the San Jacinto Road site would be able to use tertiary treated recycled water for power plant cooling. This is consistent with the State Water Resources Control Board's Policy 75-58 indicating that water for power plant cooling should avoid using fresh inland waters if other waters (such as treated wastewater) are available. Impacts to water resources would be similar at the proposed project site and the San Jacinto Road site.

Waste Management: The management of wastes would not differ significantly between the proposed project site and the San Jacinto Road site. Both sites are currently without structures and no demolition would be necessary with the construction process or the operating facility's waste generation. The San Jacinto Road site currently contains large piles of asphalt and other construction materials, but it is assumed that these materials would be removed before VSE would assume site control. Impacts to waste management would be similar at the proposed project site and the San Jacinto Road site.

Development Constraints: The San Jacinto Road site is partly located in the 100-year floodplain and contains a seasonal pond that provides habitat for the federally threatened vernal pool fairy shrimp. The basic needs of power plant siting for land, access to electrical transmission, gas supply, and cooling water are met at this alternative site. However, electrical transmission lines would have to run south of McLaughlin Road or north of the existing 500-kV line due to the construction of a second 500-kV line (the existing 115-kV line is planned to be rerouted and buried) along McLaughlin Road by the IEEC. If the transmission line were to run north of the existing 500-kV line, much less land would be available for project development. There could also be cumulative impact noise issues with the San Jacinto Road site because of its proximity to the IEEC, which is under construction.

ALTERNATIVE B: DAWSON ROAD

Site Description

The Dawson Road site is an approximately 67-acre area between the communities of unincorporated Romoland and Sun City in Riverside County. It is located immediately west of the IEEC power plant currently under construction, and bounded by Dawson Road to the west, Midas Way to the north, Antelope Road to the east, and McLaughlin Road to

the south. This alternative site is located approximately 0.77 mile northwest of the proposed project site and is zoned for Heavy Industrial development. Most of the Dawson Road site is currently being used for either construction worker parking or construction laydown for the IEEC. The southern part of this alternative site is currently in agricultural production.

The area is made up of 15 separate parcels with several different landowners. A residential community is also located approximately 0.13 mile north of this alternative site. Property to the north consists of residential and commercial uses. Property to the west and south is primarily vacant with some industrial use and the IEEC is located to the east. Two schools are located within 1 mile of the Dawson Road site: Romoland Elementary School, located approximately 0.37 mile north-northeast of this alternative site and Perris Union High School, located approximately 0.53 mile west of this alternative site. Motte Field Park is located approximately 0.26 mile north-northeast of this alternative site.

Infrastructure Availability

The Valley substation is located approximately 1.0 mile east of the Dawson Road site. It would require an interconnection that would extend along an existing SCE 500-kilovolt (kV) and 115-kV easement for approximately 1.0 mile. Natural gas service is located in Menifee Road, approximately 1.27 miles east of this alternative site and is expected to serve the IEEC along McLaughlin Road (southern border of this alternative site). A recycled water supply is also available from EMWD's pipeline in McLaughlin Road.

Environmental Assessment for Alternative B: Dawson Road

Air Quality: The quantity of emissions from proposed project operation would be the same at the Dawson Road site. Both sites have similar contributions to the regional airshed and would, therefore, be subject to similar review, emission reduction crediting, and permitting requirements. The differences between the sites in terms of their distances from the nearest residences should not make a significant difference in air quality impacts at these residences. Mitigation would bring any potential impacts to a level that is less than significant. Impacts to air quality would be similar at the proposed project site and the Dawson Road site.

Biological Resources: Both the proposed project site and the Dawson Road site do not provide good habitat for fish, wildlife, or sensitive plant species. Both are in or have recently been in agricultural use. A drainage feature that is tributary to or part of Ethanac Wash runs along the southern boundary of the Dawson Road site. The jurisdictional status of this feature has not been formally determined by the USACE and the drainage will, at some point, be replaced by a box culvert. Both sites are located within the federal and state listed Stephens' kangaroo rat fee area. Impacts to biological resources would be similar at the proposed project site and the Dawson Road site.

Cultural Resources: There are no known cultural resources at either the proposed project site or the Dawson Road site. As both sites are previously undeveloped, there is an unknown possibility of finding cultural resources. Because mitigation measures would address the treatment and protection of cultural resources, it is reasonable to assume that both sites have approximately the same cultural resources sensitivity, and that

potential impacts would be less than significant. Impacts to cultural resources would be similar at the proposed project site and the Dawson Road site.

Geological Resources and Hazards: There would be no significant differences between the proposed project site and this alternative site in terms of geological resources and hazards. There are no geological resources located on or near both sites. Impacts to geological resources and hazards would be similar at the proposed project site and the Dawson Road site.

Hazardous Materials Handling: There would be no significant difference between the site locations in terms of hazardous materials handling. The use of hazardous materials would be the same for both the proposed project site and the Dawson Road site. While there might be differences in the distances that trucks carrying hazardous materials would travel to deliver the materials, these differences would be minor. Impacts to hazardous materials handling would be similar at the proposed project site and the Dawson Road site.

Land Use: The proposed project site and the Dawson Road site are currently zoned for industrial use. The proposed project site is zoned manufacturing/service commercial. The Dawson Road site is zoned for heavy industry within the Menifee North Specific Plan. Each of these is an appropriate zoning for a peaking power plant. Residential uses of relatively high density are immediately adjacent to and north of the Dawson Road site, though a power plant could be sited on a subset of this area to be further from these uses. The zoning on the parcels adjacent to the southern end of the Dawson Road site, however, is residential, which limits the potential design flexibility. The nearest dense residential development to the proposed project site is approximately 3,000 feet to the south. The Menifee Valley Ranch development, however, is under construction and will include residential and commercial uses approximately 1,000 feet east from the proposed project site. The Dawson Road site is privately owned and has multiple owners, thereby making site control less feasible and more difficult to attain as many differing views or planned developments may exist. In contrast, VSE currently has an option agreement to purchase the proposed project site. Impacts to land use would be greater at the Dawson Road site in comparison to the proposed project site.

Noise: The proposed project site has sufficient distance from residential receptors such that they would be able to meet the County noise standards with the application of standard controls. The Dawson Road site would have difficulty doing so, because of the residences at the northern boundary and residential zoning in the southern portion of this alternative site. There could be cumulative impact noise issues with the Dawson Road site because of it's proximity to the IEEC, which is under construction. Impacts to noise are potentially greater at the Dawson Road site in comparison to the proposed project site.

Paleontology: There would be no significant differences between the proposed project site and the Dawson Road site in terms of potential effects on paleontological resources. None of the sites are located at a known paleontological find location, although significant Pleistocene fossils have been found nearby in similar alluvial deposits. The probability of encountering significant fossils is approximately the same at both sites. Impacts to paleontology would be similar at the proposed project site and the Dawson Road site.

Public Health: The proposed project site is not located within 1,000 feet of any schools, but the Dawson Road site is located within 1,000 feet of Romoland Elementary school. However, public health impacts are generally related to air quality, which are not expected to result in significant impacts. At a screening level, both sites appear to be equivalent with respect to potential impacts. Therefore, the potential for public health effects from a power plant located at the proposed project site or the Dawson Road site is approximately the same.

Socioeconomics: Both the proposed project site and the Dawson Road site are located in Riverside County. The number of workers, construction costs, payroll, and property tax revenues would be nearly the same for both sites. Most workers would commute daily or weekly to the plant site. Some may move temporarily to the local area during construction, causing site-specific impacts to schools, utilities, and emergency services. These impacts would be temporary. Disproportionate impacts to minority and low income populations would be unlikely since minority populations are not concentrated in an area or areas that are also high potential impact areas. The project is not likely to cause significant adverse public health impacts to areas that are disproportionately minority or low income. Impacts to socioeconomics would be similar at the proposed project site and the Dawson Road site.

Soils and Agriculture: There would not be significant differences between the Dawson Road site and the proposed project site in terms of their potential effects on soils and agriculture. Both sites would not result in the loss of prime or unique farmlands or farmlands of statewide importance. The proposed project site and the southern part of the Dawson Road site are currently in non-irrigated agricultural production. However, conversion of this farmland to manufacturing uses in an area zoned for manufacturing is not an adverse impact. Impacts to soils and agriculture would be similar at the proposed project site and the Dawson Road site.

Traffic and Transportation: The number of employees working at a given time during project operation (approximately 3) will not significantly impact local traffic conditions at either the proposed project site or the Dawson Road site. The peak number of employees during construction (228) will have much more impact, but the impact will be temporary, and can be mitigated by transportation management planning. The effect on construction-phase traffic, therefore, should not figure as a major consideration in evaluating or comparing the sites which are similar from the perspective of existing traffic conditions. Impacts to traffic and transportation would be similar at the proposed project site and the Dawson Road site.

Visual Resources: Neither the proposed project site nor the Dawson Road site are located in an area with protected viewshed or in a designated viewshed corridor. The visual effects are roughly the same. The proposed project site will be visible from the nearby residential area of Menifee Valley Ranch. This view will eventually be substantially blocked, however, by industrial development between Menifee Road and the proposed project site. A residential community is located approximately 0.13 mile north of the Dawson Road site, but views are not anticipated to be significantly altered by the proposed project. Both sites will not be particularly visible from within the residential development. It is possible that water vapor plumes would be visible from second story windows on residential developments. However, since plume formation typically occurs at times when ambient temperatures are low, there is little potential for

plume formation during the high temperature periods when the plant is most likely to be in operation. Impacts to visual resources are similar at the proposed project site and the Dawson Road site.

Water Resources: Both the proposed project site and the Dawson Road site would be able to use tertiary treated recycled water for power plant cooling. This is consistent with the State Water Resources Control Board's Policy 75-58 indicating that water for power plant cooling should avoid using fresh inland waters if other waters (such as treated wastewater) are available. Impacts to water resources would be similar at the proposed project site and the Dawson Road site.

Waste Management: The management of wastes would not differ significantly between the proposed project site and the Dawson Road site. Both sites are currently without structures and no demolition would be necessary with the construction process or the operating facility's waste generation. The Dawson Road site is used for equipment storage, but it is assumed that these materials would be removed before VSE would assume site control. Impacts to waste management would be similar at the proposed project site and the Dawson Road site.

Development Constraints: The Dawson Road site is located approximately 0.13 mile south of a residential community and may potentially pose environmental impacts. The basic needs of power plant siting for land, access to electrical transmission, gas supply, and cooling water are met at this alternative site. However, electrical transmission lines would have to run south of McLaughlin Road or north of the existing 500-kV line due to the construction of a second 500-kV line (existing 115-kV line would be rerouted and buried) along McLaughlin Road by the IEEC. If the transmission line were to run north of the existing 500-kV line, much less land would be available for project development. The facilities at the Dawson Road site would have to be located near the southern end of the site to be situated away from residential receptors. However, the zoning on the parcels adjacent to this area is residential, which limits the potential design flexibility. There could also be cumulative impact noise issues with the Dawson Road site because of it's proximity to the IEEC, which is under construction.

NO PROJECT ALTERNATIVE

The No Project Alternative under CEQA assumes that a project is not constructed. The CEQA Guidelines state that "the purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of approving the proposed project with the impact of not approving the proposed project" (Cal. Code Regs., tit. 14, §15126.6(i)). If the SVEP were not built, the proposed project site would likely remain vacant and the impacts of project construction and operation at this site would not occur. However, if the SVEP were not constructed, it would not contribute to the region's electricity resources and would not increase the peaking capacity for a more reliable electric system. The No Project Alternative would not meet the proposed project objectives. This alternative would result in more energy production from existing power plants than would occur otherwise, and these existing power plants currently include older, less efficient, and less environmentally sound generating units than those proposed for the SVEP.

SUMMARY AND COMPARISON

Power plant siting is feasible at both of the alternative sites, but would have different impacts on resources. As a consequence, one site may be preferred over another. In the evaluation, some factors revealed little to no difference in impact among the sites and are not discussed further.

Following is a summary of the proposed project site as compared with the alternative sites, using the site selection factors that could reasonably distinguish between sites.

- **Location more than 1,000 feet from the nearest residential area**: The proposed project site and the San Jacinto Road site meet this standard. The facilities at the Dawson Road site, however, would have to be located near the southern end of the site area to meet this standard. However, the zoning on the parcels adjacent to this area is residential, which limits the potential design flexibility.
- **Location near electrical transmission facilities:** The proposed project site and the alternative sites are located near the Valley Substation. However, routing a transmission line for the alternative sites would be more difficult than for the proposed project site.
- **Location near ample natural gas supply:** The proposed project site and the alternative sites are located relatively close to the Southern California Gas Company distribution pipelines in Menifee Road. The proposed project site is the nearest, requiring a 750-foot pipeline. The Dawson Road site would require a pipeline of a mile or more.
- **Site control feasible:** VSE has an option agreement to purchase the proposed project site. The alternative sites are privately owned and have multiple owners. Therefore, site control for the alternative sites may or may not be difficult to obtain.
- **Mitigation of potential impacts feasible:** Mitigation of potentially significant environmental impacts appears feasible at the proposed project site and the alternative sites. Mitigation for noise impacts could be prohibitively expensive, however, at the Dawson Road site, depending on configuration, due to the proximity to residential areas and the IEEC.

In conclusion, the proposed project site offers some environmental siting advantages over the San Jacinto Road and Dawson Road sites. Each of the sites would meet the proposed project objectives. The San Jacinto Road site raises environmental impact issues having to do with its location in the 100-year floodplain, and the seasonal pond feature that provides habitat for the federally threatened vernal pool fairy shrimp. The Dawson Road site would require greater capital costs for more lengthy linear facilities, particularly the transmission interconnection, and could have difficulty meeting County noise standards because it is located very near residential receptors and the IEEC. In addition, the alternative sites are privately owned and have multiple owners, which may present site control feasibility issues. For these reasons, the proposed project site was chosen for the development of the SVEP.

APPENDIX A: ALTERNATIVES CONSIDERED BUT ELIMINATED

SITE ALTERNATIVES

Potential sites located immediately to the east of the proposed project site and west of Menifee Road were considered and have the Light Industrial land use designation, but are zoned for Industrial Park development. A very large residential development called Menifee Valley Ranch is under construction to the east of Menifee Road. The parcels, zoned for Industrial Park, just east of the proposed project site and west of Menifee Road would serve as a buffering land use between the peaking project and the planned residential development. After review with County officials, this property, available for development as a buffering land use from the residential development, was not considered the preferred site.

Potential sites located east of the Valley substation were eliminated because they are generally zoned for residential development and would be very near the large-scale residential development currently under construction in the Menifee Valley Ranch.

NON-SITE ALTERNATIVES

This section describes alternatives that did not satisfy the screening criteria for inclusion in a more detailed analysis, and include the following:

- Conservation and Demand-Side Management;
- Hydroelectric and Geothermal Generation;
- Biomass Generation;
- Solar Generation; and
- Wind Generation.

These alternatives, and the reasons for their not being considered in detail in this analysis, are addressed below.

Conservation and Demand-Side Management

Conservation and Demand-Side Management (DSM) consists of a variety of approaches, including energy efficiency improvement, building and appliance standards, and load management and fuel substitution. Public Resources Code Section 25305(c) states that conservation, load management, or other demand reducing measures reasonably expected to occur shall be explicitly examined in the Energy Commission's energy forecasts and shall not be considered as alternatives to a proposed facility during the siting process. The forecast that addresses this issue is the Energy Commission's 2005 Integrated Energy Policy Report. Thus, such alternatives are not included in this analysis.

Hydroelectric and Geothermal Generation

While hydropower does not require burning fossil fuels and may be available in California, this power source can cause significant environmental impacts, due primarily to the inundation of many acres of potentially valuable habitat and the interference with fish movements during their life cycles. The Elsinore Valley Municipal Water District and the

Nevada Hydro Company have proposed a 500 MW pumped storage hydroelectric facility, the Lake Elsinore Advanced Pump Storage (LEAPS) Project, which is under Federal Energy Regulatory Commission (FERC) review. Water would need to be pumped for 1 hour at 600 MW in order to allow generation for 1 hour at 500 MW. In addition to inefficient electricity generation and the complexity of a large hydroelectric project, LEAPS also involves a proposed 500-kV transmission through the Cleveland National Forest. FERC is expected to issue a decision sometime during 2007.

It is extremely unlikely that new large hydropower facilities could be developed and permitted in California within the next several years (Aspen 2001) because of the long planning and permitting times (e.g., LEAPS was initially proposed in 1987) generally required. No additional commercial scale hydroelectric resources currently exist in Riverside County. In addition, Riverside County does not have any commercial scale geothermal resources that would be sufficient for electricity generation. For these reasons, hydroelectric and geothermal generation were not considered practical alternatives.

Biomass Generation

Biomass generation uses a waste vegetation fuel source such as wood chips (the preferred source) or agricultural waste. The fuel is burned to generate steam. Biomass facilities generate substantially greater quantities of air pollutant emissions than natural gas burning facilities. In addition, biomass plants are typically sized to generate less than 20 MW, which is substantially less than the capacity of the 500 MW SVEP project. Twenty-five 20 MW biomass facilities would be required to generate 500 MW. At the peak of the biomass industry, 66 biomass plants were in operation in California, but as of 2001, only about 30 direct-combustion biomass facilities were in operation (CEC 2004c). These power plants could have potentially significant environmental impacts of their own. Biomass fuels are not locally available in sufficient quantities to make them a practical alternative fuel. Therefore, this alternative is not included in this analysis.

Solar Generation

There are two types of solar generation: solar thermal power and photovoltaic (PV) power generation.

Solar thermal power generation involves the conversion of solar radiation to thermal energy, which is then used to run a conventional steam power system. Solar thermal is a viable alternative to conventional generation systems and, depending on the technology, is suited to either distributed generation on the kW scale or to centralized power generation on scales up to hundreds of MW. Solar thermal systems use three designs to generate electricity: parabolic trough concentrating collectors, power tower/heliostat configurations, and parabolic dish collectors. Parabolic trough and power tower systems typically run conventional power units, such as steam turbines, while parabolic dish systems power a small engine at the focal point of the collector.

PV power generation involves the direct conversion of light to electricity. PV is best suited to distributed generation uses rather than centralized power generation. PV is the most capital intensive of any alternative generation technology (Aspen 2001). PV power systems consist of solar electric modules (built from PV cells) assembled into arrays of varying sizes to produce electric power proportional to the area of the array and the

intensity of the sunlight. PV arrays can be mounted on either the ground or on buildings. They can be installed on dual-purpose structures such as covered parking lots.

Solar resources would require large land areas in order to generate 500 MW of electricity. Specifically, assuming location in an area receiving maximum solar exposure such as the desert areas of California, central receiver solar thermal projects require approximately five acres per MW, so 500 MW would require approximately 2,500 acres. One square kilometer of PV generation (400 acres) can produce 100 MW of power, so 500 MW would require approximately 2,000 acres. Either of these technologies would use significantly more land area than the area required for the proposed SVEP.

Although air emissions are significantly reduced or eliminated for solar facilities, these facilities can have significant visual effects. Solar generation results in the absence or reduction in air pollutant emissions, and visible plumes. Although water is required for periodic washing of the collectors, water consumption for solar generation is substantially less than for a natural gas-fired plant because there is no thermal cooling requirement. However, development over a large area could affect numerous biological resources and would require careful analysis of potential impacts from either solar or PV generation at such a scale.

Like all technologies generating power for sale into the state's power grid, solar thermal facilities and PV generation require near access to transmission lines. Large solar thermal plants must be located in desert areas with high direct normal insolation, and in these remote areas, transmission availability is limited. Additionally, solar energy technologies cannot provide full-time, quick start availability due to the natural intermittent availability of sunlight. Therefore, solar thermal power and photovoltaic power generation would not successfully meet the proposed project objectives.

Wind Generation

Wind carries kinetic energy that can be used to spin the blades of a wind turbine rotor and an electrical generator, which then feeds alternating current into the utility grid. Most state-of-the-art wind turbines operating today convert 35 to 40 percent of the wind's kinetic energy into electricity. Modern wind turbines represent viable alternatives to large bulk power fossil power plants as well as small-scale distributed systems. The range of capacity for an individual wind turbine today ranges from 400 watts up to 3.6 MW. California's 1,700 MW of wind power represents 1.5 percent of the state's electrical capacity (Aspen 2001).

Although air emissions are significantly reduced or eliminated for wind facilities, these facilities can have significant visual effects. Wind turbines have also caused bird mortality (especially for raptors) resulting from collision with rotating blades, although this effect is more noted in the Altamont Pass area than in other parts of the state.

Wind resources require large land areas in order to generate 500 MW of electricity. Depending on the size of the wind turbines, wind generation "farms" generally can require between 5 and 17 acres to generate one megawatt (CEC 2004a). A 500 MW plant would therefore require between 2,500 and 8,500 acres. The lack of available transmission access is an important barrier to wind power development (Beck et al. 2001). California has a diversity of existing and potential wind resource regions that are near load centers such as San Francisco, Los Angeles, San Diego and Sacramento

(CEC 2004b). However, wind energy technologies cannot provide full-time, quick start availability due to the natural intermittent availability of wind resources. Therefore, wind generation technology would not meet the proposed project's goal, which is to provide peak-serving capacity.

Conclusion Regarding Alternative Technologies

Alternative generation typically has specific resource needs, environmental impacts, permitting difficulties, and intermittent availability. Therefore, these technologies do not fulfill a basic objective of the proposed project which is to provide peak load serving capability in order to ensure a reliable supply of electricity in the region. Consequently, staff does not believe that these renewable technologies present feasible alternatives to the proposed project.

REFERENCES

Aspen (Aspen Environmental Group). 2001. Draft report prepared for the California Energy Commission on assessment of alternative generation technologies, December, 2001.

Bass et al. (Ronald Bass, Albert Henson, and Kenneth Bogdan). 1999. *CEQA Deskbook: A Step-by-Step Guide on How to Comply with the California Environmental Quality Act.* Solano Press. Point Arena, California

Beck et al. (Fredric Beck, Jan Hamrin, Richard Sindano, and Virinder Singh. 2001. *Renewable Energy for California: Benefits, Status and Potential,* Washington, DC: Renewable Energy Policy Project, August 24, 2001. p.17.

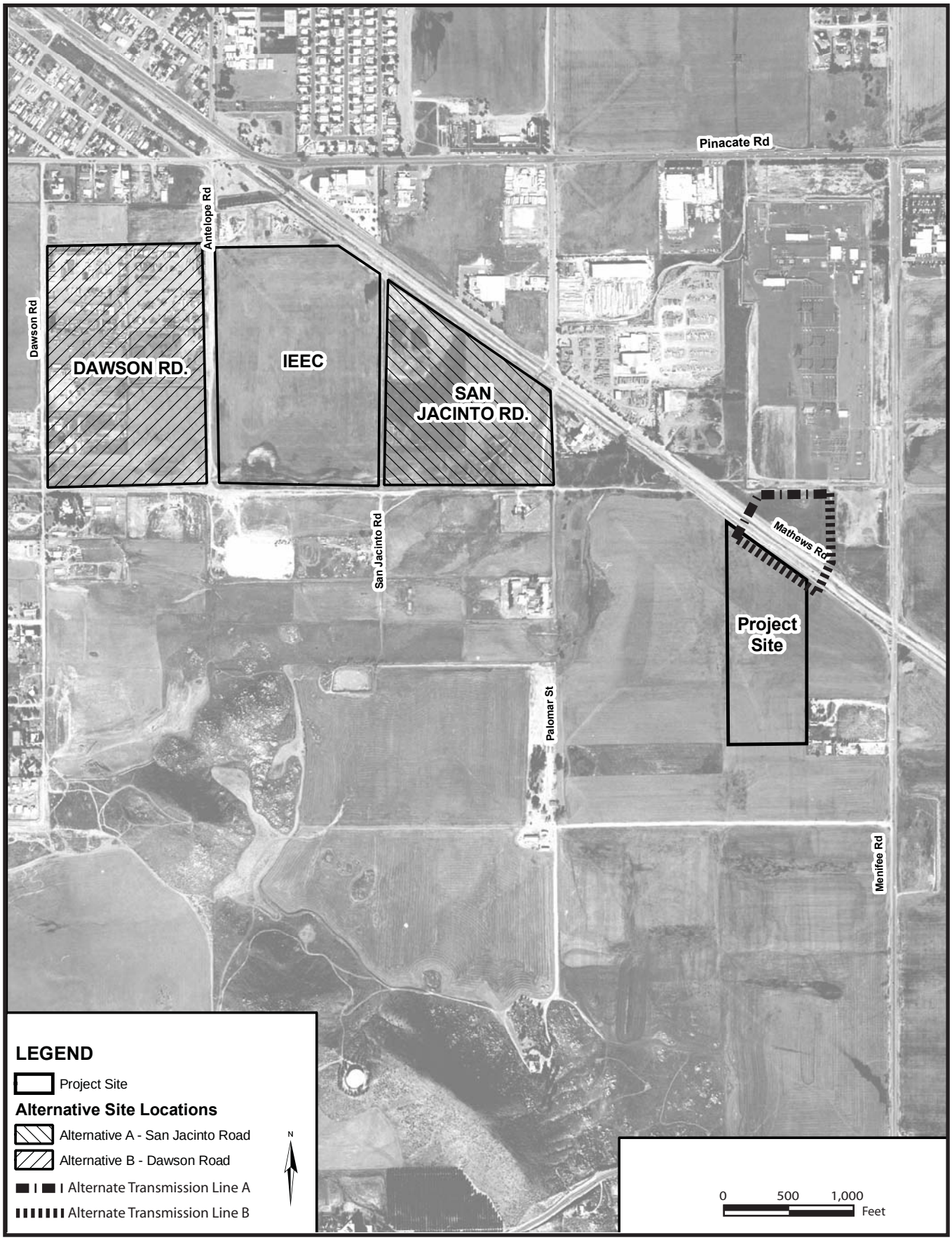
CEC (California Energy Commission). 2004a. Internet Website at http://www.energy.ca.gov/wind/overview.html.

____. 2004b. Internet Website at http://www.energy.ca.gov/maps/wind_map.html.

____. 2004c. Internet Website at http://www.energy.ca.gov/development/biomass/biomass.html.

ALTERNATIVES - FIGURE 1

Sun Valley Energy Center Project - Alternative Sites and Transmission Line Routes



CALIFORNIA ENERGY COMMISSION - ENERGY FACILITIES SITING DIVISION, APRIL 2007

SOURCE: AFC Figure 9.3-1 Modified By CEC

GENERAL CONDITIONS INCLUDING COMPLIANCE MONITORING AND CLOSURE PLAN

Connie Bruins

INTRODUCTION

The project's General Compliance Conditions of Certification, including Compliance Monitoring and Closure Plan (Compliance Plan) have been established as required by Public Resources Code section 25532. The plan provides a means for assuring that the facility is constructed, operated and closed in compliance with public health and safety, environmental and other applicable regulations, guidelines, and conditions adopted or established by the California Energy Commission and specified in the written decision on the Application for Certification or otherwise required by law.

The Compliance Plan is composed of elements that:

1. Set forth the duties and responsibilities of the Compliance Project Manager (CPM), the project owner, delegate agencies, and others;
2. Set forth the requirements for handling confidential records and maintaining the compliance record;
3. State procedures for settling disputes and making post-certification changes;
4. State the requirements for periodic compliance reports and other administrative procedures that are necessary to verify the compliance status for all Energy Commission approved conditions of certification;
5. Establish requirements for facility closure plans; and
6. Specify conditions of certification for each technical area containing the measures required to mitigate any and all potential adverse project impacts associated with construction, operation and closure to an insignificant level. Each specific condition of certification also includes a verification provision that describes the method of assuring that the condition has been satisfied.

DEFINITIONS

The following terms and definitions are used to establish when conditions of certification are implemented.

PRE-CONSTRUCTION SITE MOBILIZATION

Site mobilization is limited preconstruction activities at the site to allow for the installation of construction trailers, construction trailer utilities, and construction trailer parking at the site. Limited ground disturbance, grading, and trenching associated with the above mentioned pre-construction activities is considered part of site mobilization. Fencing for the site is also considered part of site mobilization. Walking, driving or parking a passenger vehicle, pickup truck and light vehicles is allowable during site mobilization.

CONSTRUCTION GROUND DISTURBANCE

Construction-related ground disturbance refers to activities that result in the removal of top soil or vegetation at the site and for access roads and linear facilities.

CONSTRUCTION GRADING, BORING, AND TRENCHING

Construction-related grading, boring, and trenching refers to activities that result in subsurface soil work at the site and for access roads and linear facilities, e.g., alteration of the topographical features such as leveling, removal of hills or high spots, moving of soil from one area to another, and removal of soil.

CONSTRUCTION

[From section 25105 of the Warren-Alquist Act.] Onsite work to install permanent equipment or structures for any facility. Construction does **not** include the following:

1. the installation of environmental monitoring equipment;
2. a soil or geological investigation;
3. a topographical survey;
4. any other study or investigation to determine the environmental acceptability or feasibility of the use of the site for any particular facility; and
5. any work to provide access to the site for any of the purposes specified in "Construction" 1, 2, 3, or 4 above.

START OF COMMERCIAL OPERATION

For compliance monitoring purposes, "commercial operation" begins after the completion of start-up and commissioning, where the power plant has reached reliable steady-state production of electricity at the rated capacity. For example, at the start of commercial operation, plant control is usually transferred from the construction manager to the plant operations manager.

COMPLIANCE PROJECT MANAGER RESPONSIBILITIES

The CPM will oversee the compliance monitoring and shall be responsible for:

1. Ensuring that the design, construction, operation, and closure of the project facilities are in compliance with the terms and conditions of the Energy Commission Decision;
2. Resolving complaints;
3. Processing post-certification changes to the conditions of certification, project description, and ownership or operational control;
4. Documenting and tracking compliance filings; and
5. Ensuring that the compliance files are maintained and accessible.

The CPM is the contact person for the Energy Commission and will consult with appropriate responsible agencies and the Energy Commission when handling disputes, complaints and amendments.

All project compliance submittals are submitted to the CPM for processing. Where a submittal required by a condition of certification requires CPM approval, the approval will involve all appropriate Energy Commission staff and management.

PRE-CONSTRUCTION AND PRE-OPERATION COMPLIANCE MEETING

The CPM usually schedules pre-construction and pre-operation compliance meetings prior to the projected start-dates of construction, plant operation, or both. The purpose of these meetings will be to assemble both the Energy Commission's and the project owner's technical staff to review the status of all pre-construction or pre-operation requirements contained in the Energy Commission's conditions of certification to confirm that they have been met, or if they have not been met, to ensure that the proper action is taken. In addition, these meetings ensure, to the extent possible, that Energy Commission conditions will not delay the construction and operation of the plant due to oversight, and to preclude any last minute, unforeseen issues from arising. Pre-construction meetings held during the certification process must be publicly noticed unless they are confined to administrative issues and processes.

ENERGY COMMISSION RECORD

The Energy Commission shall maintain as a public record, in either the Compliance file or Dockets file, for the life of the project (or other period as required):

1. All documents demonstrating compliance with any legal requirements relating to the construction and operation of the facility;
2. All monthly and annual compliance reports filed by the project owner;
3. All complaints of noncompliance filed with the Energy Commission; and
4. All petitions for project or condition of certification changes and the resulting staff or Energy Commission action.

PROJECT OWNER RESPONSIBILITIES

The project owner is responsible for ensuring that the compliance conditions of certification and all of the other conditions of certification that appear in the Commission Decision are satisfied. The compliance conditions regarding post-certification changes specify measures that the project owner must take when requesting changes in the project design, conditions of certification, or ownership. Failure to comply with any of the conditions of certification or the compliance conditions may result in reopening of the case and revocation of Energy Commission certification, an administrative fine, or other action as appropriate. A summary of the Compliance Conditions of Certification is included as **Compliance Table 1** at the conclusion of this section.

COMPLIANCE CONDITIONS OF CERTIFICATION

Unrestricted Access (COMPLIANCE-1)

The CPM, responsible Energy Commission staff, and delegate agencies or consultants shall be guaranteed and granted unrestricted access to the power plant site, related facilities, project-related staff, and the records maintained on site, for the purpose of conducting audits, surveys, inspections, or general site visits. Although the CPM will normally schedule site visits on dates and times agreeable to the project owner, the CPM reserves the right to make unannounced visits at any time.

Compliance Record (COMPLIANCE-2)

The project owner shall maintain project files onsite or at an alternative site approved by the CPM, for the life of the project unless a lesser period of time is specified by the conditions of certification. The files shall contain copies of all "as-built" drawings, all documents submitted as verification for conditions, and all other project-related documents.

Energy Commission staff and delegate agencies shall, upon request to the project owner, be given unrestricted access to the files.

Compliance Verification Submittals (COMPLIANCE-3)

Each condition of certification is followed by a means of verification. The verification describes the Energy Commission's procedure(s) to ensure post-certification compliance with adopted conditions. The verification procedures, unlike the conditions, may be modified as necessary by the CPM, and in most cases without full Energy Commission approval.

Verification of compliance with the conditions of certification can be accomplished by:

1. Reporting on the work done and providing the pertinent documentation in monthly and/or annual compliance reports filed by the project owner or authorized agent as required by the specific conditions of certification;
2. Providing appropriate letters from delegate agencies verifying compliance;
3. Energy Commission staff audits of project records; and/or
4. Energy Commission staff inspections of work or other evidence that the requirements are satisfied.

Verification lead times (e.g., 90, 60 and 30 days) associated with start of construction may require the project owner to file submittals during the certification process, particularly if construction is planned to commence shortly after certification.

A cover letter from the project owner or authorized agent is required for all compliance submittals and correspondence pertaining to compliance matters. **The cover letter subject line shall identify the involved condition(s) of certification by condition number and include a brief description of the subject of the submittal**. The project owner shall also identify those submittals **not** required by a condition of certification with a statement such as: "This submittal is for information only and is not required by a

specific condition of certification." When submitting supplementary or corrected information, the project owner shall reference the date of the previous submittal.

The project owner is responsible for the delivery and content of all verification submittals to the CPM, whether such condition was satisfied by work performed by the project owner or an agent of the project owner.

All submittals shall be addressed as follows:

Compliance Project Manager
California Energy Commission
1516 Ninth Street (MS-2000)
Sacramento, CA 95814

If the project owner desires Energy Commission staff action by a specific date, it shall so request in its submittal cover letter and include a detailed explanation of the effects on the project if this date is not met.

Pre-Construction Matrix and Tasks Prior to Start of Construction (COMPLIANCE-4)

Prior to commencing construction, a compliance matrix addressing only those conditions that must be fulfilled before the start of construction shall be submitted by the project owner to the CPM. This matrix will be included with the project owner's **first** compliance submittal or prior to the first pre-construction meeting, whichever comes first. It will be in the same format as the compliance matrix described below.

Construction shall not commence until the pre-construction matrix is submitted, all pre-construction conditions have been complied with, and the CPM has issued a letter to the project owner authorizing construction. Various lead times (e.g., 30, 60, 90 days) for submittal of compliance verification documents to the CPM for conditions of certification are established to allow sufficient staff time to review and comment and, if necessary, allow the project owner to revise the submittal in a timely manner. This will ensure that project construction may proceed according to schedule.

Failure to submit compliance documents within the specified lead-time may result in delays in authorization to commence various stages of project development.

If the project owner anticipates starting project construction as soon as the project is certified, it may be necessary for the project owner to file compliance submittals prior to project certification. This is important if the required lead-time for a required compliance event extends beyond the date anticipated for start of construction. It is also important that the project owner understand that the submittal of compliance documents prior to project certification is at the owner's own risk. Any approval by Energy Commission staff is subject to change based upon the Commission Decision.

Compliance Reporting

There are two different compliance reports that the project owner must submit to assist the CPM in tracking activities and monitoring compliance with the terms and conditions of the Energy Commission Decision. During construction, the project owner or authorized agent will submit Monthly Compliance Reports. During operation, an Annual

Compliance Report must be submitted. These reports, and the requirement for an accompanying compliance matrix, are described below. The majority of the conditions of certification require that compliance submittals be submitted to the CPM in the monthly or annual compliance reports.

Compliance Matrix (COMPLIANCE-5)

A compliance matrix shall be submitted by the project owner to the CPM along with each monthly and annual compliance report. The compliance matrix is intended to provide the CPM with the current status of all conditions of certification in a spreadsheet format. The compliance matrix must identify:

1. The technical area;
2. The condition number;
3. A brief description of the verification action or submittal required by the condition;
4. The date the submittal is required (e.g., 60 days prior to construction, after final inspection, etc.);
5. The expected or actual submittal date;
6. The date a submittal or action was approved by the Chief Building Official (CBO), CPM, or delegate agency, if applicable; and
7. The compliance status of each condition, e.g., “not started,” “in progress” or “completed” (include the date).

Satisfied conditions do not need to be included in the compliance matrix after they have been identified as satisfied in at least one monthly or annual compliance report.

Monthly Compliance Report (COMPLIANCE-6)

The first Monthly Compliance Report is due one month following the Energy Commission business meeting date upon which the project was approved, unless otherwise agreed to by the CPM. The first Monthly Compliance Report shall include an initial list of dates for each of the events identified on the **Key Events List. The Key Events List Form is found at the end of this section.**

During pre-construction and construction of the project, the project owner or authorized agent shall submit an original and eight copies of the Monthly Compliance Report within 10 working days after the end of each reporting month. Monthly Compliance Reports shall be clearly identified for the month being reported. The reports shall contain, at a minimum:

1. A summary of the current project construction status, a revised/updated schedule if there are significant delays, and an explanation of any significant changes to the schedule;
2. Documents required by specific conditions to be submitted along with the Monthly Compliance Report. Each of these items must be identified in the transmittal letter, and submitted as attachments to the Monthly Compliance Report;
3. An initial, and thereafter updated, compliance matrix showing the status of all conditions of certification (fully satisfied conditions do not need to be included in the matrix after they have been reported as completed);

4. A list of conditions that have been satisfied during the reporting period, and a description or reference to the actions that satisfied the condition;
5. A list of any submittal deadlines that were missed, accompanied by an explanation and an estimate of when the information will be provided;
6. A cumulative listing of any approved changes to conditions of certification;
7. A listing of any filings submitted to, or permits issued by, other governmental agencies during the month;
8. A projection of project compliance activities scheduled during the next two months. The project owner shall notify the CPM as soon as any changes are made to the project construction schedule that would affect compliance with conditions of certification;
9. A listing of the month's additions to the on-site compliance file; and
10. A listing of complaints, notices of violation, official warnings, and citations received during the month, a description of the resolution of the resolved actions, and the status of any unresolved actions.

Annual Compliance Report (COMPLIANCE-7)

After construction is complete, the project owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports. The reports are for each year of commercial operation and are due to the CPM each year at a date agreed to by the CPM. Annual Compliance Reports shall be submitted over the life of the project unless otherwise specified by the CPM. Each Annual Compliance Report shall identify the reporting period and shall contain the following:

1. An updated compliance matrix showing the status of all conditions of certification (fully satisfied conditions do not need to be included in the matrix after they have been reported as completed);
2. A summary of the current project operating status and an explanation of any significant changes to facility operations during the year;
3. Documents required by specific conditions to be submitted along with the Annual Compliance Report. Each of these items must be identified in the transmittal letter, and submitted as attachments to the Annual Compliance Report;
4. A cumulative listing of all post-certification changes approved by the Energy Commission or cleared by the CPM;
5. An explanation for any submittal deadlines that were missed, accompanied by an estimate of when the information will be provided;
6. A listing of filings submitted to, or permits issued by, other governmental agencies during the year;
7. A projection of project compliance activities scheduled during the next year;
8. A listing of the year's additions to the on-site compliance file;
9. An evaluation of the on-site contingency plan for unplanned facility closure, including any suggestions necessary for bringing the plan up to date [see Compliance Conditions for Facility Closure addressed later in this section]; and

10. A listing of complaints, notices of violation, official warnings, and citations received during the year, a description of the resolution of any resolved matters, and the status of any unresolved matters.

Confidential Information (COMPLIANCE-8)

Any information that the project owner deems confidential shall be submitted to the Energy Commission's Dockets Unit with an application for confidentiality pursuant to Title 20, California Code of Regulations, section 2505(a). Any information that is determined to be confidential shall be kept confidential as provided for in Title 20, California Code of Regulations, section 2501 et. seq.

Annual Energy Facility Compliance Fee (COMPLIANCE-9)

Pursuant to the provisions of Section 25806(b) of the Public Resources Code, the project owner is required to pay an annual fee of fifteen thousand dollars ($15,000), which may be adjusted annually. The initial payment is due on the date the Energy Commission adopts the final decision. All subsequent payments are due by July 1 of each year in which the facility retains its certification. The payment instrument shall be made payable to the California Energy Commission and mailed to: Accounting Office MS-02, California Energy Commission, 1516 9th St., Sacramento, CA 95814.

Reporting of Complaints, Notices, and Citations (COMPLIANCE-10)

Prior to the start of construction, the project owner must send a letter to property owners living within one mile of the project notifying them of a telephone number to contact project representatives with questions, complaints or concerns. If the telephone is not staffed 24 hours per day, it shall include automatic answering with date and time stamp recording. All recorded complaints shall be responded to within 24 hours. The telephone number shall be posted at the project site and made easily visible to passersby during construction and operation. The telephone number shall be provided to the CPM who will post it on the Energy Commission's web page at:

http://www.energy.ca.gov/sitingcases/power_plants_contacts.html

Any changes to the telephone number shall be submitted immediately to the CPM, who will update the web page.

In addition to the monthly and annual compliance reporting requirements described above, the project owner shall report and provide copies to the CPM of all complaint forms, notices of violation, notices of fines, official warnings, and citations, within 10 days of receipt. Complaints shall be logged and numbered. Noise complaints shall be recorded on the form provided in the **NOISE** conditions of certification. All other complaints shall be recorded on the complaint form (Attachment A).

FACILITY CLOSURE

At some point in the future, the project will cease operation and close down. At that time, it will be necessary to ensure that the closure occurs in such a way that public health and safety and the environment are protected from adverse impacts. Although the project setting for this project does not appear, at this time, to present any special or

unusual closure problems, it is impossible to foresee what the situation will be in 30 years or more when the project ceases operation. Therefore, provisions must be made that provide the flexibility to deal with the specific situation and project setting that exist at the time of closure. Laws, Ordinances, Regulations and Standards (LORS) pertaining to facility closure are identified in the sections dealing with each technical area. Facility closure will be consistent with LORS in effect at the time of closure.

There are at least three circumstances in which a facility closure can take place: planned closure, unplanned temporary closure and unplanned permanent closure**.**

CLOSURE DEFINITIONS

Planned Closure

A planned closure occurs when the facility is closed in an anticipated, orderly manner, at the end of its useful economic or mechanical life, or due to gradual obsolescence.

Unplanned Temporary Closure

An unplanned temporary closure occurs when the facility is closed suddenly and/or unexpectedly, on a short-term basis, due to unforeseen circumstances such as a natural disaster or an emergency.

Unplanned Permanent Closure

An unplanned permanent closure occurs if the project owner closes the facility suddenly and/or unexpectedly, on a permanent basis. This includes unplanned closure where the owner remains accountable for implementing the on-site contingency plan. It can also include unplanned closure where the project owner is unable to implement the contingency plan, and the project is essentially abandoned.

COMPLIANCE CONDITIONS FOR FACILITY CLOSURE

Planned Closure (COMPLIANCE-11)

In order to ensure that a planned facility closure does not create adverse impacts, a closure process that provides for careful consideration of available options and applicable laws, ordinances, regulations, standards, and local/regional plans in existence at the time of closure, will be undertaken. To ensure adequate review of a planned project closure, the project owner shall submit a proposed facility closure plan to the Energy Commission for review and approval at least 12 months (or other period of time agreed to by the CPM) prior to commencement of closure activities. The project owner shall file 120 copies (or other number of copies agreed upon by the CPM) of a proposed facility closure plan with the Energy Commission.

The plan shall:

1. Identify and discuss any impacts and mitigation to address significant adverse impacts associated with proposed closure activities and to address facilities, equipment, or other project related remnants that will remain at the site;
2. Identify a schedule of activities for closure of the power plant site, transmission line corridor, and all other appurtenant facilities constructed as part of the project;

3. Identify any facilities or equipment intended to remain on site after closure, the reason, and any future use; and
4. Address conformance of the plan with all applicable laws, ordinances, regulations, standards, and local/regional plans in existence at the time of facility closure, and applicable conditions of certification.

Prior to submittal of the proposed facility closure plan, a meeting shall be held between the project owner and the Energy Commission CPM for the purpose of discussing the specific contents of the plan.

In the event that there are significant issues associated with the proposed facility closure plan's approval, or the desires of local officials or interested parties are inconsistent with the plan, the CPM shall hold one or more workshops and/or the Energy Commission may hold public hearings as part of its approval procedure.

As necessary, prior to or during the closure plan process, the project owner shall take appropriate steps to eliminate any immediate threats to public health and safety and the environment, but shall not commence any other closure activities until the Energy Commission approves the facility closure plan.

Unplanned Temporary Closure/On-Site Contingency Plan (COMPLIANCE-12)

In order to ensure that public health and safety and the environment are protected in the event of an unplanned temporary facility closure, it is essential to have an on-site contingency plan in place. The on-site contingency plan will help to ensure that all necessary steps to mitigate public health and safety impacts and environmental impacts are taken in a timely manner.

The project owner shall submit an on-site contingency plan for CPM review and approval. The plan shall be submitted no less that 60 days (or other time agreed to by the CPM) prior to commencement of commercial operation. The approved plan must be in place prior to commercial operation of the facility and shall be kept at the site at all times.

The project owner, in consultation with the CPM, will update the on-site contingency plan as necessary. The CPM may require revisions to the on-site contingency plan over the life of the project. In the annual compliance reports submitted to the Energy Commission, the project owner will review the on-site contingency plan, and recommend changes to bring the plan up to date. Any changes to the plan must be approved by the CPM.

The on-site contingency plan shall provide for taking immediate steps to secure the facility from trespassing or encroachment. In addition, for closures of more than 90 days, unless other arrangements are agreed to by the CPM, the plan shall provide for removal of hazardous materials and hazardous wastes, draining of all chemicals from storage tanks and other equipment, and the safe shutdown of all equipment. (Also see specific conditions of certification for the technical areas of Hazardous Materials Management and Waste Management.)

In addition, consistent with requirements under unplanned permanent closure addressed below, the nature and extent of insurance coverage, and major equipment warranties must also be included in the on-site contingency plan. In addition, the status of the insurance coverage and major equipment warranties must be updated in the annual compliance reports.

In the event of an unplanned temporary closure, the project owner shall notify the CPM, as well as other responsible agencies, by telephone, fax, or e-mail, within 24 hours and shall take all necessary steps to implement the on-site contingency plan. The project owner shall keep the CPM informed of the circumstances and expected duration of the closure.

If the CPM determines that an unplanned temporary closure is likely to be permanent, or for a duration of more than 12 months, a closure plan consistent with the requirements for a planned closure shall be developed and submitted to the CPM within 90 days of the CPM's determination (or other period of time agreed to by the CPM).

Unplanned Permanent Closure/On-Site Contingency Plan (COMPLIANCE-13)

The on-site contingency plan required for unplanned temporary closure shall also cover unplanned permanent facility closure. All of the requirements specified for unplanned temporary closure shall also apply to unplanned permanent closure.

In addition, the on-site contingency plan shall address how the project owner will ensure that all required closure steps will be successfully undertaken in the event of abandonment.

In the event of an unplanned permanent closure, the project owner shall notify the CPM, as well as other responsible agencies, by telephone, fax, or e-mail, within 24 hours and shall take all necessary steps to implement the on-site contingency plan. The project owner shall keep the CPM informed of the status of all closure activities.

A closure plan, consistent with the requirements for a planned closure, shall be developed and submitted to the CPM within 90 days of the permanent closure or another period of time agreed to by the CPM.

Post Certification Changes to the Energy Commission Decision: Amendments, Ownership Changes, Insignificant Project Changes and Verification Changes (COMPLIANCE-14)

The project owner must petition the Energy Commission pursuant to Title 20, California Code of Regulations, section 1769, in order to modify the project (including linear facilities) design, operation or performance requirements, and to transfer ownership or operational control of the facility. **It is the responsibility of the project owner to contact the CPM to determine if a proposed project change should be considered a project modification pursuant to section 1769.** Implementation of a project modification without first securing Energy Commission, or Energy Commission staff approval, may result in enforcement action that could result in civil penalties in accordance with section 25534 of the Public Resources Code.

A petition is required for **amendments** and for **insignificant project changes** as specified below. For verification changes, a letter from the project owner is sufficient. In all cases, the petition or letter requesting a change should be submitted to the CPM, who will file it with the Energy Commission's Dockets Unit in accordance with Title 20, California Code of Regulations, section 1209.

The criteria that determine which type of approval and the process that applies are explained below. They reflect the provisions of Section 1769 at the time this condition was drafted. If the Commission's rules regarding amendments are amended, the rules in effect at the time an amendment is requested shall apply.

Amendment

The project owner shall petition the Energy Commission, pursuant to Title 20, California Code of Regulations, Section 1769, when proposing modifications to the project (including linear facilities) design, operation, or performance requirements. If a proposed modification results in deletion or change of a condition of certification, or makes changes that would cause the project not to comply with any applicable laws, ordinances, regulations or standards, the petition will be processed as a formal amendment to the final decision, which requires public notice and review of the Energy Commission staff analysis, and approval by the full Commission. This process takes approximately two to three months to complete, and possibly longer for complex project modifications.

Change of Ownership

Change of ownership or operational control also requires that the project owner file a petition pursuant to section 1769 (b). This process takes approximately one month to complete, and requires public notice and approval by the full Commission.

Insignificant Project Change

Modifications that do not result in deletions or changes to conditions of certification, and that are compliant with laws, ordinances, regulations and standards may be authorized by the CPM as an insignificant project change pursuant to section 1769(a) (2). This process usually takes less than one month to complete, and it requires a 14-day public review of the Notice of Insignificant Project Change that includes staff's intention to approve the modification unless substantive objections are filed.

Verification Change

A verification may be modified by the CPM without requesting an amendment to the decision if the change does not conflict with the conditions of certification and provides an effective alternate means of verification. This process usually takes less than five working days to complete.

CBO DELEGATION AND AGENCY COOPERATION

In performing construction and operation monitoring of the project, Energy Commission staff acts as, and has the authority of, the Chief Building Official (CBO). Energy Commission staff may delegate CBO responsibility to either an independent third party

contractor or the local building official. Energy Commission staff retains CBO authority when selecting a delegate CBO, including enforcing and interpreting state and local codes, and use of discretion, as necessary, in implementing the various codes and standards.

Energy Commission staff may also seek the cooperation of state, regional and local agencies that have an interest in environmental protection when conducting project monitoring.

ENFORCEMENT

The Energy Commission's legal authority to enforce the terms and conditions of its Decision is specified in Public Resources Code sections 25534 and 25900. The Energy Commission may amend or revoke the certification for any facility, and may impose a civil penalty for any significant failure to comply with the terms or conditions of the Energy Commission Decision. The specific action and amount of any fines the Energy Commission may impose would take into account the specific circumstances of the incident(s). This would include such factors as the previous compliance history, whether the cause of the incident involves willful disregard of LORS, oversight, unforeseeable events, and other factors the Energy Commission may consider.
Moreover, to ensure compliance with the terms and conditions of certification and applicable LORS, delegate agencies are authorized to take any action allowed by law in accordance with their statutory authority, regulations, and administrative procedures.

NONCOMPLIANCE COMPLAINT PROCEDURES

Any person or agency may file a complaint alleging noncompliance with the conditions of certification. Such a complaint will be subject to review by the Energy Commission pursuant to Title 20, California Code of Regulations, section 1237, but in many instances the noncompliance can be resolved by using the informal dispute resolution process. Both the informal and formal complaint procedure, as described in current State law and regulations, are described below. They shall be followed unless superseded by future law or regulations.

The Energy Commission has established a toll free compliance telephone number of **1-800-858-0784** for the public to contact the Energy Commission about power plant construction or operation-related questions, complaints or concerns.

Informal Dispute Resolution Procedure

The following procedure is designed to informally resolve disputes concerning the interpretation of compliance with the requirements of this compliance plan. The project owner, the Energy Commission, or any other party, including members of the public, may initiate this procedure for resolving a dispute. Disputes may pertain to actions or decisions made by any party, including the Energy Commission's delegate agents.

This procedure may precede the more formal complaint and investigation procedure specified in Title 20, California Code of Regulations, section 1237, but is not intended to be a substitute for, or prerequisite to it. This informal procedure may not be used to change the terms and conditions of certification as approved by the Energy

Commission, although the agreed upon resolution may result in a project owner, or in some cases the Energy Commission staff, proposing an amendment.

The procedure encourages all parties involved in a dispute to discuss the matter and to reach an agreement resolving the dispute. If a dispute cannot be resolved, then the matter must be brought before the full Energy Commission for consideration via the complaint and investigation process. The procedure for informal dispute resolution is as follows:

Request for Informal Investigation

Any individual, group, or agency may request the Energy Commission to conduct an informal investigation of alleged noncompliance with the Energy Commission's terms and conditions of certification. All requests for informal investigations shall be made to the designated CPM.

Upon receipt of a request for informal investigation, the CPM shall promptly notify the project owner of the allegation by telephone and letter. All known and relevant information of the alleged noncompliance shall be provided to the project owner and to the Energy Commission staff. The CPM will evaluate the request and the information to determine if further investigation is necessary. If the CPM finds that further investigation is necessary, the project owner will be asked to promptly investigate the matter and within seven working days of the CPM's request, provide a written report to the CPM of the results of the investigation, including corrective measures proposed or undertaken. Depending on the urgency of the noncompliance matter, the CPM may conduct a site visit and/or request the project owner to provide an initial report, within 48 hours, followed by a written report filed within seven days.

Request for Informal Meeting

In the event that either the party requesting an investigation or the Energy Commission staff is not satisfied with the project owner's report, investigation of the event, or corrective measures proposed or undertaken, either party may submit a written request to the CPM for a meeting with the project owner. Such request shall be made within 14 days of the project owner's filing of its written report. Upon receipt of such a request, the CPM shall:

1. Immediately schedule a meeting with the requesting party and the project owner, to be held at a mutually convenient time and place;
2. Secure the attendance of appropriate Energy Commission staff and staff of any other agencies with expertise in the subject area of concern, as necessary;
3. Conduct such meeting in an informal and objective manner so as to encourage the voluntary settlement of the dispute in a fair and equitable manner; and
4. After the conclusion of such a meeting, promptly prepare and distribute copies to all in attendance and to the project file, a summary memorandum that fairly and accurately identifies the positions of all parties and any conclusions reached. If an agreement has not been reached, the CPM shall inform the complainant of the formal complaint process and requirements provided under Title 20, California Code of Regulations, section 1230 et seq.

Formal Dispute Resolution Procedure-Complaints and Investigations

If either the project owner, Energy Commission staff, or the party requesting an investigation is not satisfied with the results of the informal dispute resolution process, such party may file a complaint with the Energy Commission's Dockets Unit. Requirements for complaint filings and a description of how complaints are processed are in Title 20, California Code of Regulations, section 1237.

KEY EVENTS LIST

PROJECT: _____

DOCKET #: _____

COMPLIANCE PROJECT MANAGER: _____

EVENT DESCRIPTION	DATE
Certification Date	
Obtain Site Control	
Online Date	
POWER PLANT SITE ACTIVITIES	
Start Site Mobilization	
Start Ground Disturbance	
Start Grading	
Start Construction	
Begin Pouring Major Foundation Concrete	
Begin Installation of Major Equipment	
Completion of Installation of Major Equipment	
First Combustion of Gas Turbine	
Obtain Building Occupation Permit	
Start Commercial Operation	
Complete All Construction	
TRANSMISSION LINE ACTIVITIES	
Start T/L Construction	
Synchronization with Grid and Interconnection	
Complete T/L Construction	
FUEL SUPPLY LINE ACTIVITIES	
Start Gas Pipeline Construction and Interconnection	
Complete Gas Pipeline Construction	
WATER SUPPLY LINE ACTIVITIES	
Start Water Supply Line Construction	
Complete Water Supply Line Construction	

COMPLIANCE TABLE 1
SUMMARY of COMPLIANCE CONDITIONS OF CERTIFICATION

CONDITION NUMBER	SUBJECT	DESCRIPTION
COMPLIANCE-1	Unrestricted Access	The project owner shall grant Energy Commission staff and delegate agencies or consultants unrestricted access to the power plant site.
COMPLIANCE-2	Compliance Record	The project owner shall maintain project files on-site. Energy Commission staff and delegate agencies shall be given unrestricted access to the files.
COMPLIANCE-3	Compliance Verification Submittals	The project owner is responsible for the delivery and content of all verification submittals to the CPM, whether such condition was satisfied by work performed or the project owner or his agent.
COMPLIANCE-4	Pre-construction Matrix and Tasks Prior to Start of Construction	Construction shall not commence until the all of the following activities/submittals have been completed: ▪ property owners living within one mile of the project have been notified of a telephone number to contact for questions, complaints or concerns, ▪ a pre-construction matrix has been submitted identifying only those conditions that must be fulfilled before the start of construction, ▪ all pre-construction conditions have been complied with, ▪ the CPM has issued a letter to the project owner authorizing construction.
COMPLIANCE-5	Compliance Matrix	The project owner shall submit a compliance matrix (in a spreadsheet format) with each monthly and annual compliance report which includes the status of all compliance conditions of certification.
COMPLIANCE-6	Monthly Compliance Report including a Key Events List	During construction, the project owner shall submit Monthly Compliance Reports (MCRs) which include specific information. The first MCR is due the month following the Energy Commission business meeting date on which the project was approved and shall include an initial list of dates for each of the events identified on the Key Events List.
COMPLIANCE-7	Annual Compliance Reports	After construction ends and throughout the life of the project, the project owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports.

CONDITION NUMBER	SUBJECT	DESCRIPTION
COMPLIANCE-8	Confidential Information	Any information the project owner deems confidential shall be submitted to the Energy Commission's Dockets Unit with a request for confidentiality.
COMPLIANCE-9	Annual fees	Payment of Annual Energy Facility Compliance Fee
COMPLIANCE-10	Reporting of Complaints, Notices and Citations	Within 10 days of receipt, the project owner shall report to the CPM, all notices, complaints, and citations.
COMPLIANCE-11	Planned Facility Closure	The project owner shall submit a closure plan to the CPM at least 12 months prior to commencement of a planned closure.
COMPLIANCE-12	Unplanned Temporary Facility Closure	To ensure that public health and safety and the environment are protected in the event of an unplanned temporary closure, the project owner shall submit an on-site contingency plan no less than 60 days prior to commencement of commercial operation.
COMPLIANCE-13	Unplanned Permanent Facility Closure	To ensure that public health and safety and the environment are protected in the event of an unplanned permanent closure, the project owner shall submit an on-site contingency plan no less than 60 days prior to commencement of commercial operation.
COMPLIANCE-14	Post-certification changes to the Decision	The project owner must petition the Energy Commission to delete or change a condition of certification, modify the project design or operational requirements and/or transfer ownership of operational control of the facility.

ATTACHMENT A

COMPLAINT REPORT/RESOLUTION FORM

PROJECT NAME:
AFC Number:

COMPLAINT LOG NUMBER _____
Complainant's name and address:

Phone number: _____

Date and time complaint received:

Indicate if by telephone or in writing (attach copy if written):
Date of first occurrence:

Description of complaint (including dates, frequency, and duration):

Findings of investigation by plant personnel:

Indicate if complaint relates to violation of a CEC requirement:
Date complainant contacted to discuss findings: _____

Description of corrective measures taken or other complaint resolution:

Indicate if complainant agrees with proposed resolution:
If not, explain:

Other relevant information:

If corrective action necessary, date completed: _____
Date first letter sent to complainant: _____(copy attached)
Date final letter sent to complainant: _____(copy attached)

This information is certified to be correct.
Plant Manager's Signature: _____ Date:

(Attach additional pages and supporting documentation, as required.)

PREPARATION TEAM

SUN VALLEY ENERGY PROJECT
PREPARATION TEAM

Executive Summary	Robert Worl
Introduction	Robert Worl
Project Description	Robert Worl
Air Quality	Joe Loyer
Biological Resources	John Mathias
Cultural Resources	Beverly Bastian
Hazardous Materials Management	Rick Tyler, Alvin Greenberg
Land Use	Amanda Stennick
Noise	Shahab Khoshmashrab, P.E.
Public Health	Obed Odoemelam, PhD
Socioeconomic Resources	Joseph Diamond, PhD
Soils and Water Resources	Richard Latteri
Traffic and Transportation	Jim Adams
Transmission Line Safety and Nuisance	Obed Odoemelam, PhD
Visual Resources	Jim Adams
Waste Management	Ellie Townsend-Hough
Worker Safety and Fire Protection	Rick Tyler, Alvin Greenberg
Geology and Paleontology	Dal Hunter, PhD, C.E.G.
Facility Design	Shabab Khoshmasrab, P.E.
Power Plant Efficiency	Steve Baker, P.E.
Power Plant Reliability	Steve Baker, P.E.
Transmission System Engineering	Sudath Arachchige
Alternatives	Stan Yeh
Compliance Monitoring and Facility Closure	Connie Bruins
Project Secretary	.Dora Gomez

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA

APPLICATION FOR CERTIFICATION FOR THE SUN VALLEY ENERGY PROJECT (SVEP)

DOCKET NO. 05-AFC-3
PROOF OF SERVICE LIST
(Revised 3/23/07)

INSTRUCTIONS: All parties shall 1) send an original signed document plus 12 copies OR 2) mail one original signed copy AND e-mail the document to the web address below, AND 3) all parties shall also send a printed OR electronic copy of the documents that shall include a proof of service declaration to each of the individuals on the proof of service:

DOCKET UNIT

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 05-AFC-3
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

APPLICANT

Jenifer Morris
Project Manager
NJ Resources, LLC
7240 Heil Ave.
Huntington Beach, CA 92647
jenifer@njr.net

***Victor Yamada, Project Manager**
Edison Mission Energy
18101 Von Karman Avenue,
Suite 1700
Irvine, CA 92612-1046
vyamada@EdisonMission.Com

Tom McCabe
Edison Mission Energy
18101 Von Karman Avenue
Irvine, CA 92612
tmccabe@edisonmission.com

APPLICANT'S CONSULTANT

CH2M HILL
Douglas M. Davy, Ph.D., Sr. Project Manager
2485 Natomas Park Dr., Suite 600
Sacramento, CA 95833
ddavy@ch2m.com

COUNSEL FOR APPLICANT

Galati & Blek, LLP
Scott Galatti
Plaza Towers
555 Capitol Mall, Suite 600
Sacramento, CA 95814
sgalati@gb-llp.com

INTERESTED AGENCIES

***Songzhe Zhu**
Ca. Independent System Operator
151 Blue Ravine Road
Folsom, CA 95630
SZhu@caiso.com

Eric Saltmarsh
Electricity Oversight Board
770 L Street, Suite 1250
Sacramento, CA 95814
esaltmarsh@eob.ca.gov

INTERVENORS

Roland Skumawitz, Superintendent
Romoland School District
25900 Leon Road
Romoland, California 92548

California Unions for Reliable Energy
Marc D. Joseph
Gloria D. Smith
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, California
94080
mdjoseph@adamsbroadwell.com

ENERGY COMMISSION

John L. Geesman
Presiding Member
MS-31

Jackalyne Pfannenstiel
Associate Member
MS-33

Gary Fay
Hearing Officer
MS-9

Project Manager
Robert Worl
MS-15

Staff Counsel
Deborah Dyer
MS-14

Public Adviser
MS-12

DECLARATION OF SERVICE

I, Joann Gonzales declare that on May 17, 2007 I deposited copies of the attached Sun Valley PSA in the United States mail at Sacramento, CA with first class postage thereon fully prepaid and addressed to those identified on the Proof of Service list above. Transmission via electronic mail was consistent with the requirements of California Code of Regulations, title 20, sections 1209, 1209.5, and 1210.

I declare under penalty of perjury that the foregoing is true and correct.

Original signature in Dockets
(Signature)