STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

In the Matter of:	)	**Docket No. 98-AFC-4**
	)	
Application for Certification for the SUNRISE COGENERATION POWER PROJECT	)	**NOTICE OF AVAILABILITY OF PRESIDING MEMBER S PROPOSED DECISION and NOTICE OF COMMITTEE CONFERENCE**

I. NOTICE OF AVAILABILITY

The Committee released the Presiding Member s Proposed Decision (PMPD) for the Sunrise Cogeneration Power Project on May 10, 2000. Copies have been sent to all on the Proof of Service List, and are also available from the Commission s Publications Unit, 1516 9th Street, MS-13, Sacramento, CA 95814. You may also telephone the Publications Unit at (916) 654-5200. Ask for Publication No. P800-00-004, and on the Commission s Web site at <www.energy.ca.gov/sitingcases/sunrise>

Members of the public and interested governmental agencies may submit written comments on the PMPD. The public comment period ends on June 9, 2000. All comments must be received ***no later than 3:00 p.m. on June 9, 2000***, by the Commission s Docket Unit, 1516 9th Street, Sacramento, CA 95814. Identify all comments with Docket No. 98-AFC-4.

II. NOTICE OF CONFERENCE

The Committee will also hold a public Conference to receive comments on the PMPD as follows:

TUESDAY, June 6, 2000
Beginning at 10:00 a.m.
California Energy Commission
Hearing Room A
1516 Ninth Street
Sacramento, California
(Wheelchair Accessible)

Applicant, Staff, and all other formal parties wishing to participate at this Conference must file written comments prior to the conference on the PMPD. These comments shall be served and filed ***no later than 3:00 p.m., June 2, 2000***. Members of the general public wishing to participate at this Conference are encouraged, but not required, to submit their written comments by the same date.

For information concerning public participation, contact the Commission s Public Adviser, Roberta Mendonca, at (916) 654-4489 or, toll free, at (800) 822-6228; or e-mail: <pao@energy.state.ca.us> Media inquiries should be directed to Claudia Chandler at (916)

654-4989. If you require special accommodations, contact Robert Sifuentes at (916) 654-5004 at least five days prior to the Conference.

Technical questions should be directed to the Commission s Project Manager, Mark Pryor, at (916) 653-0159, or email: <mpryor@energy.state.ca.us> Questions of a legal or procedural nature should be addressed to Gary Fay, Hearing Officer, at (916) 654-3893.

Dated: _____

ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION

MICHAL C. MOORE, Commissioner
Presiding Committee Member

ROBERT PERNELL, Commissioner
Associate Committee Member

CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET
SACRAMENTO, CA 95814-5512

The Committee hereby submits its Presiding Member's Proposed Decision for the Sunrise Cogeneration Power Project (Docket Number 98-AFC-4). We have prepared this document pursuant to the requirements set forth in the Commission's regulations. (20 Cal. Code of Regs.,// 1749-1752.5). Based upon the evidence presented we have concluded that the United States Environmental Protection Agency (USEPA) has found the Final Determination of Compliance to be invalid. This is explained in further detail in the **Air Quality** portion of this document. Therefore, we recommend the Application for Certification for the Sunrise Cogeneration Power Project not be approved at this time, and that the Commission not grant the Applicant a license to construct and operate the project until Applicant provides evidence that the objections of the USEPA regarding the Sunrise Final Determination of Compliance have been resolved.

Dated: _____

ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION

MICHAL M. MOORE, Commissioner
Presiding Committee Member

ROBERT PERNELL, Commissioner
Associate Committee Member

STATE OF CALIFORNIA

Energy Resources
Conservation and Development Commission

In the Matter of:	)	**Docket No. 98-AFC-4**
	)	
Application for Certification	)	**COMMISSION ADOPTION ORDER**
for the Sunrise Cogeneration	)	
Power Project	)	
	)	

This Commission Order adopts the Commission Decision on the Sunrise Cogeneration Power Project. It incorporates the Presiding Member s Proposed Decision (PMPD) in the above-captioned matter and the Committee Errata (___Date_____) thereto. The Commission Decision is based upon the evidentiary record of these proceedings (Docket No. 98-AFC-4) and considers the comments received at the ----------business meeting. The text of the attached Commission Decision contains a summary of the proceedings, the evidence presented, and the rationale for the findings reached and Conditions imposed.

This ORDER adopts by reference the text, Conditions of Certification, Compliance Verifications, and Appendices contained in the Commission Decision. It also adopts specific requirements contained in the PMPD which ensure that the proposed facility will be designed, sited, and operated in a manner to protect environmental quality, to assure public health and safety, and to operate in a safe and reliable manner.

FINDINGS

The Commission hereby adopts the following findings in addition to those contained in the accompanying text:

1. The Sunrise Cogeneration Power Project is a merchant power plant whose capital costs will not be borne by the State s electricity ratepayers.

2. The Conditions of Certification contained in the accompanying text, if implemented by the Applicant, ensure that the project will be designed, sited, and operated in conformity with applicable local, regional, state, and federal laws, ordinances, regulations, and standards, including applicable public health and safety standards, and air and water quality standards.

3. Implementation of the Conditions of Certification contained in the accompanying text will ensure protection of environmental quality and assure reasonably safe and reliable operation of the facility. The Conditions of Certification also assure that the project will neither result in, nor contribute substantially to, any significant direct, indirect, or cumulative adverse environmental impacts.

4. Existing governmental land use restrictions are sufficient to adequately control population density in the area surrounding the facility and may be reasonably expected to ensure public health and safety.

5. The evidence of record establishes that no feasible alternatives to the project, as described during these proceedings, exist.

6. The evidence of the record does not establish the existence of any environmentally superior alternative site.

7. The PMPD contains measures to ensure that the planned, temporary, or unexpected closure of the project will occur in conformance with applicable laws, ordinances, regulations, and standards.

8. The proceedings leading to this Decision have been conducted in conformity with the applicable provisions of Commission regulations governing the consideration of an Application for Certification and thereby meet the requirements of Public Resources Code, sections 21000 et. seq., and 25500 et. seq..

ORDER

Therefore, the Commission ORDERS the following:

1. The Application for Certification of the Sunrise Cogeneration Power Project as described in this Decision is hereby approved and a certificate to construct and operate the project is hereby granted.

2. The approval of the Application for Certification is subject to the timely performance of the Conditions of Certification and Compliance Verifications enumerated in the accompanying text and Appendices. The Conditions and Compliance Verifications are integrated with this Decision and are not severable therefrom. While Applicant may delegate the performance of a Condition or Verification, the duty to ensure adequate performance of a Condition or Verification may not be delegated.

3. For purposes of reconsideration pursuant to Public Resources Code section 25530, this Decision is deemed adopted when filed with the Commission s Docket Unit.

4. For purposes of judicial review pursuant to Public Resources Code section 25531, this Decision is final thirty (30) days after its filing in the absence of the filing of a petition for reconsideration or, if a petition for reconsideration is filed within thirty (30) days, upon the adoption and filing of an Order upon reconsideration with the Commission s Docket Unit.

5. The Commission hereby adopts the Conditions of Certification, Compliance Verifications, and associated dispute resolution procedures as part of this Decision in order to implement the compliance monitoring program required by Public Resources Code section 25532. All conditions in this Decision take effect immediately upon adoption and apply to all construction and site preparation activities including, but not limited to, ground disturbance, site preparation, and permanent structure construction.

6. The Executive Director of the Commission shall transmit a copy of this Decision and appropriate accompanying documents as provided by Public Resources Code section 25537 and California Code of Regulations, title 20, section 1768.

Dated: _____

ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION

_____
WILLIAM J. KEESE
Chairman

_____
ARTHUR H. ROSENFELD
Commissioner

_____
MICHAL C. MOORE
Commissioner

_____
ROBERT A. LAURIE
Commissioner

_____
ROBERT PERNELL
Commissioner

PRESIDING MEMBER S PROPOSED DECISION

APPLICATION FOR CERTIFICATION for the

SUNRISE COGENERATION POWER PROJECT

Docket No 98-AFC-4

MAY 2000

CALIFORNIA ENERGY COMMISSION

Gray Davis, *Governor*

P800-00-004

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INTRODUCTION

A. SUMMARY

This document is the Presiding Member s Proposed Decision (PMPD).[1] It contains the Committee s determinations regarding the Application for Certification (AFC) for the Sunrise Cogeneration and Power Project and includes the findings and conclusions required by law. The PMPD is based exclusively on the evidentiary record established at the hearings on the application. The document contains the Committee s reasons supporting its Decision and references to portions of the record which support the Committee s findings and conclusions.[2]

The Sunrise Cogeneration and Power Project will be located in western Kern County, near the community of Derby Acres. The project is a 320 megawatt (MW) natural gas-fired cogeneration project, which will produce electricity for the state electrical grid and steam for oil production in the adjacent oil field. The project will interconnect to the regional transmission system at Pacific Gas & Electric s Midway substation, via a 23-mile 230 kV line. The facility s fresh water requirements will be minimal, since the primary project water supply will be pretreated, produced water from the adjacent oil field operations. The Sunrise project will receive its natural gas fuel through a 60-foot long 12-inch diameter gas pipeline owned by Texaco California, Inc. (TCI).

Sunrise cogeneration and Power Company (Applicant or SCPC) plans to begin construction immediately after certification. The capital cost for the project is

[1] The requirements for the Presiding Member s Proposed Decision are set forth in the Commission s regulations, Title 20, California Code of Regulations, sections 1749 through 1754. Requirements for the Revised PMPD are found in Title 20, California Code of Regulations, section 1753. The Final Decision is described in Section 1755.

[2] References to the evidentiary record, which appear in parentheses following the referenced material, may include an exhibit number and/or a reference to the date and page number of the reporter s transcript e.g., (Ex. 2, p. 55; 11/5/99 RT 123.)

estimated at $250 million. There will be a peak work force of approximately 255 construction jobs and about 24 permanent facility operations personnel.

Throughout this proceeding Applicant has faced a number of challenges from various governmental agencies and from Intervenors in the case. The most serious of these challenges has concerned air quality issues. Most significant in our view, is the United States Environmental Protection Agency s (USEPA) determination that the final determination of compliance (FDOC), issued by the local air district, was invalid. Subsequently, USEPA informed the record that an agreement in principal had been reached with Texaco, owner of the Sunrise project, and that if USEPA and Texaco could sign a consent decree which reflects the terms of the agreement in principal, USEPA would not further question the local air district s Final Determination of Compliance issued to Sunrise. In our view, the agreement in principal identified in the USEPA letter of March 31, 2000, is a good indication that the USEPA objections to the Sunrise FDOC will likely be resolved. However, prior to the Commission s final Decision approving the Sunrise project, Applicant must submit a copy of a signed consent decree or agreement which reflects the agreement in principal between Texaco and USEPA.

Concerning other air quality challenges to its application, Sunrise was generally successful in meeting its burden of proof. Near the close of hearings, Sunrise made the constructive offer of including a carbon monoxide (CO) oxidation catalyst as part of its pollution control package. However, to ensure adequate mitigation of emissions during project construction, we have required Applicant to also use oxidizing soot filters on construction equipment wherever feasible.

Concerning the topic of public health, we agree with the approach taken by Applicant and Staff that defines offsite workers in the adjacent oil field as conducting work sufficiently related to that of the Sunrise project to require protection by existing OSHA industrial standards. While we seriously considered

CURE s arguments concerning potential risks from acrolein emissions during construction, we have found that the use of oxidizing soot filters will adequately mitigate any potential risks from acrolein and other emissions. We did not find CURE s challenges to Applicant s worker safety provisions to be persuasive, finding instead that Applicant can meet all legal requirements and provide safe working conditions.

We also find that Applicant has met its burden regarding the management of hazardous material handling. The effort by CURE to require aqueous ammonia instead of Applicant s proposed use of anhydrous ammonia was not persuasive in this case. Applicant s proposal and the Conditions of Certification will reduce the risks of ammonia handling to insignificant levels. We have also found this to be true regarding Applicant s transportation of ammonia from its distributor to the Sunrise project.

CURE s argument that the project will have significant impacts on biological resources in the area was not persuasive. The record contains no evidence of likely harm to endangered species; in fact, the project is expected to fully offset all biological impacts through the purchase of large amounts of habitat to benefit endangered species. Concerning CURE s challenge that the project will significantly degrade water quality and use an illegal wastewater disposal source, the evidence was unsupportive. A witness from the Department of Toxic Substances Control testified persuasively that the project s water test results demonstrated the adequacy of the Sunrise proposal for water and wastewater management.

An additional challenge arose from another Intervenor, the Transmission Agency of Northern California (TANC). TANC argued that the Sunrise project will cause congestion on the state s north-south transmission system, leading to consequential air quality impacts. However, we found that the analysis sought by

TANC is too speculative at this time to be used as a basis for conditions in this case.

Notwithstanding the many challenges to the Sunrise project, we are aware of a number of benefits which are attached to the project. First, the project is well located, in an oil field, a highly disturbed environment remote from the general public. It will provide an average 160 jobs during construction providing a payroll of $18-$23 million during its fifteen month construction period. It is projected to generate $1,750,000 in property taxes in its first year of operation.

While all large power plant projects have similar employment and tax benefits, the Sunrise project offers additional benefits resulting from its design as a cogeneration facility. Its thermal efficiency will be in excess of 87 percent as compared to a 58-60 percent efficiency for a new combined cycle stand-alone plant. Because the project will provide steam to a one third mile radius area around the plant, the project will purchase over 529 acres of habitat as compensation for the disturbed area in the oil field for which the Sunrise project will provide steam. The project is also designed to use produced water from oil field operations to cool the power plant. As a result the project will not use a cooling tower, with its attendant air and water emissions. The Sunrise project will also consume far less fresh water than do most power plants.

Finally, we have required the Sunrise project to provide community lighting for streets and/or the park in Derby Acres; an obvious benefit to this small oil field community.

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B. SITE CERTIFICATION PROCESS

The Sunrise Power Plant and Cogeneration Project and its related facilities fall within Energy Commission licensing jurisdiction. (Pub. Resources Code, // 25500 et seq.). During its licensing proceedings, the Commission acts as lead state agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code, // 25519(c), 21000 et seq.), and the Commission s process and associated documents are functionally equivalent to the preparation of the traditional Environmental Impact Report. (Pub. Resources Code, / 21080.5.) The process is designed to allow the review of a project to be completed within a limited period of time; a license issued by the Commission is in lieu of other state and local permits.

The Commission s certification process provides a thorough and timely review and analysis of all aspects of this proposed project. During the process, we conduct a comprehensive examination of a project s potential economic, public health and safety, reliability, engineering, and environmental ramifications.

Significantly, the Commission s process allows for and encourages public participation so that members of the public may become involved either informally, or on a more formal level as an Intervenor with the same legal rights and duties as the project developers. Public participation is encouraged at every stage of the process.

The process begins when an Applicant submits the Application for Certification (AFC). Commission staff reviews the data submitted as part of this AFC, and recommends to the Commission whether or not it contains adequate information to permit review to commence. Once the Commission determines that an AFC contains sufficient analytic information, it appoints a Committee of two Commissioners to conduct the licensing process. The Commission also appoints a hearing officer to provide legal assistance to the Committee in each case. This

process includes holding public conferences and evidentiary hearings, as well as providing a recommendation to the full Commission concerning a project s ultimate acceptability. The Committee and ultimately the Commission serve as fact-finder and decision-maker. The role of the Commission s Public Advisor is to assist members of the public and intervenors with their understanding of and participation in the Commission s siting process.

All parties, including the applicant, Commission staff, and any intervenors, are subject to the *ex parte* rule, which prohibits them from communicating on substantive matters with Committee members, their staffs, and the hearing officer, except for communications which are on the public record.

The initial portion of the certification process is weighted heavily toward assuring public awareness of the proposed project and obtaining such further technical information as is necessary. During this time, the Commission staff sponsors numerous public workshops at which intervenors, agency representatives, members of the public, Staff, and Applicant meet to evaluate and resolve pertinent issues. Staff then publicizes its initial technical evaluation of the project in the document called the Staff Assessment .

Following this, the Committee conducts a Prehearing Conference to assess the adequacy of the available information, identify issues, and determine the positions of the various participants. Information gleaned from this event forms the basis for a Hearing Order organizing and scheduling formal evidentiary hearings. At these hearings, all who have become formal parties are able to present testimony, under oath or affirmation, which is subject to cross-examination by other parties and to questioning by the Committee. The public may also comment on a proposed project at these hearings. Evidence and public comment adduced during these hearings provides the basis for the decision-makers analysis.

This analysis appears in a Committee recommendation to the full Commission in the form of a Presiding Member s Proposed Decision, which is available for a public review period of at least 30 days. Depending upon the extent of revision necessary in reaction to comments received during this period, the Committee may then elect to publish a revised version. If so, this latter document triggers an additional 15-day public comment period. Finally, the full Commission decides whether to accept, reject, or modify the Committee s recommendations at a public hearing.

C. PROCEDURAL HISTORY

Public Resources Code, sections 25500 et seq. and Commission regulations (Cal. Code of Regs., tit. 20, // 1701, et seq.) mandate a public process and specify the occurrence of certain necessary events. The key procedural elements occurring during the present case are summarized below.

The Applicant submitted its Application for Certification (AFC) on December 21, 1998. Shortly thereafter, Staff sent a request for agency participation to those governmental agencies likely to have an interest in the project. On February 17, 1999, the full Commission determined that the Applicant had made its AFC sufficiently informative and complete to commence the review process.

The Committee scheduled its initial event, an Informational Hearing and Site Visit , by notice dated February 25, 1999. This notice was sent to all known to be interested in the proposed project, including owners of land adjacent to, or in the near vicinity of, the Sunrise project; it was also published in local general circulation newspapers.

The Committee conducted the Informational Hearing in the community of Derby Acres on March 18, 1999. At this event, the Applicant hosted a visit to the

proposed power plant site and along the proposed transmission line route. Following the site visit, the Committee and other participants discussed the proposed Sunrise Cogeneration and Power Plant, described the Energy Commission s review process, and identified opportunities for public participation. The next day, Commission staff held the first in a series of informal post-acceptance public workshops in the local area to further discuss project details. The Committee issued its required Scheduling Order on April 1, 1999.

The Committee held a Status Conference on May 25, 1999, to hear argument on the appropriate scope of environmental review for the project. The Committee s determination on the scope of review was issued in its Order of June 4, 1999. Identified as the Joint Blueprint, it determined the portions of the project which would be analyzed by the Commission in its role as a lead agency under CEQA. (Ex. 23, Figure 1.) In response to a Motion to Compel Production of Information filed by CURE, the Committee issued its August 26, 1999 Order setting forth the Committee s determination.

Pursuant to this Order, and following additional case development, the Commission staff released its Preliminary Staff Assessment (PSA) on August 2, 1999, and conducted various workshops to receive comments on the PSA. Thereafter, on September 1, 1999, the Committee conducted a Prehearing Conference to assess the status of the case and determine whether substantive issues required adjudication. After considering the comments of all parties, the Committee subsequently scheduled issuance of the Final Staff Assessment (FSA), Parts 1, 2, and 3 issued respectively on October 1, 15 and December 12, 1999.[3] The Committee conducted formal evidentiary hearings on October 12

[3] **Part 1** of the FSA contains the following technical areas: Project Description; Need Conformance; Hazardous Materials Management; Transmission Line Safety and Nuisance; Land Use; Noise; Visual Resources; Cultural Resources; Waste Management; Biological Resources; Geology and Paleontology; Facility Design; Power Plant Reliability; Power Plant Efficiency; Alternatives; and General Conditions/Compliance.
Part 2 of the FSA contains: Worker Safety and Fire Protection; Traffic and Transportation; Socioeconomics; and Transmission System Engineering.

and 14, November 5, December 2 and 3, 1999, and on January 10, 11, 13, and 28, 2000.

The Committee, after establishing the evidentiary record, published this Presiding Member s Proposed Decision (PMPD) on May 10, 2000, followed by a 30-day period for the public to comment on the PMPD.

Those who formally intervened as parties in this process include: the California Unions for Reliable Energy (CURE); the Transmission Agency of Northern California, Elk Hills Power Project, and High Desert Power Project.

Part 3 of the FSA includes: Air Quality; Public Health; Soils and Water Resources; and Biological Resources (revised).

I. PROJECT PURPOSE AND DESCRIPTION

SUMMARY AND DISCUSSION OF THE EVIDENCE

The project Applicant is the Sunrise Cogeneration and Power Company (SCPC, or Applicant), a Delaware corporation which is a wholly-owned subsidiary of Texaco, Inc. SCPC proposes to construct and operate the Sunrise Cogeneration and Power Project (SCPP or Sunrise Project), a 320 megawatt (MW) natural-gas fired, cogeneration facility. Applicant s objective is to produce thermal energy from the Sunrise project, in the form of high pressure steam that will be provided to an adjacent thermal host, Texaco California, Inc. (TCI), for use in thermally enhanced oil recovery operations. An additional project objective is to produce electricity for sale in California s newly deregulated electricity market. (Ex. 1, section 1.2; 10/12/99 RT 28.)

The power plant site is approximately 35 miles southwest of Bakersfield, 8 miles northwest of Taft, 7 miles southeast of McKittrick, 3 miles northwest of Fellows, and 2.5 miles south of Derby Acres. (See Figure 1.)

The power plant would be located on a 20-acre parcel of vacant land and is within the existing Midway Sunset oil and gas production field. The vicinity is heavily developed and utilized by petroleum companies for natural gas and oil production. Numerous petroleum recovery and storage facilities, electric and petroleum transmission lines, and access roads characterize the area. (See Figure 2.)

The 320 MW cogeneration project will consist of two General Electric Frame 7FA combustion turbine generators (CTGs) and two heat recovery steam generators (HRSGs). Each turbine will be equipped with dry low-NO_x (oxides of nitrogen) combustors, and the HRSGs will be equipped with anhydrous ammonia type selective catalytic reduction (SCR) for emissions control. Project Description

Figure 3 shows a plan view of the proposed power plant site arrangement. (See Figure 3.)

Each CTG system will consist of a stationary, heavy duty, industrial CTG capable of producing approximately 165 MW of electricity at site conditions. Exhaust gas from each CTG will flow directly through an unfired single-pass HRSG with an SCR, before passing through an exhaust stack. Each HRSG will be designed to produce steam at operating conditions of approximately 574 ¡F and at 1,250 pounds per square inch. The steam will be piped to TCI steam injection wells in the vicinity of the project.

The Sunrise plant will produce approximately 120,000 barrels of steam per day for enhanced oil recovery in the Midway Sunset oil field. This amount of steam is sufficient for roughly 2,000 oil production and associated steam injection wells. The injected steam will serve to lower the viscosity of crude oil in the oil-bearing strata and physically displace the crude in the direction of oil production wells, a process known as thermally enhanced oil recovery (TEOR).

As a cogeneration project, the production of steam for enhanced oil recovery creates potential project-related environmental impacts beyond the boundaries of the power plant itself. Accordingly, the Committee issued an Order defining the scope of the project for the purposes of environmental analysis.[4] The Order defined an area within the _-mile radius circle around the proposed power plant, where roughly 700 new steam wells will be constructed and served by the Sunrise project.

[4] Committee Order on Scope of Review issued on June 4, 1999.

PROJECT DESCRIPTION - SITE LOCATION Figure 1

Source: Ex. 1, p. 1-5

PROJECT DESCRIPTION - LOCAL SETTING Figure 2

Source: Ex. 23, p. 19

PROJECT DESCRIPTION - SITE ARRANGEMENT Figure 3

Source: Ex. 23, p. 20

The facility s consumptive fresh water requirements will be minimal, since the primary project water supply will be pretreated, produced water from the adjacent oil field operations. It is intended that Western Kern Water District (WKWD) will supply secondary boiler feedwater when the TCI feedwater supply is interrupted. In addition, WKWD will supply a small quantity of potable water and service water required for domestic purposes and possibly evaporative cooler makeup. Wastewater will be routed to Valley Waste via TCI s main utility corridor.

Natural gas will be the only fuel used at the facility and will be supplied by the thermal host, TCI. The Sunrise project will receive gas via a 60-foot long 12-inch diameter gas pipeline from TCI s main natural gas pipeline, which is currently under construction and will interconnect with TCI s main utility corridor.

Power will be generated by the CTGs at 18 kilovolt (kV) and stepped up by two transformers to 230 kV in a new substation (the Sunrise Substation) directly east of the cogeneration plant. The cogeneration plant interconnection to the regional transmission system will be at Pacific Gas & Electric s Midway substation, via an approximately 23-mile 230 kV line. Multiple 230 kV transmission line alternatives are being considered to interconnect the Sunrise project to the California electric transmission grid. The preferred route, Route B, would connect the Sunrise project directly to PG&E s Midway Substation near Buttonwillow. An alternative Route F would connect the Sunrise substation to the La Paloma substation and from there a joint ownership line would connect to the Midway substation.

Project Description Figure 4 shows electric transmission line Route B. The transmission line would run from the power plant site to the northwest past the east side of the Midway-Sunset power plant, then north past the west side of the proposed La Paloma power plant and east of McKittrick, then northeast to the Midway substation in Buttonwillow. The first few miles of the route travel through an area containing heavy petroleum development. This development becomes less intense as the route nears and crosses State Route 33 south of McKittrick

and travels through the McKittrick Valley and over the Elk Hills. The route then drops into the southern San Joaquin Valley, crossing irrigated agricultural land on its way to Midway Substation.

SCPC plans to begin construction immediately after certification, and plans to begin commercial operation by late spring of 2001. The capital cost for the project is estimated at $250 million. There will be a peak work force of approximately 255 construction jobs and about 24 permanent facility operations personnel.

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PROJECT DESCRIPTION Figure 4

ELECTRIC TRANSMISSION LINE ROUTE B

Source: Ex. 23, p. 21

FINDINGS AND CONCLUSIONS

Based upon the evidence of record, we find as follows:

1. The project objective is to construct and operate a nominally rated 320 MW natural gas-fired cogeneration merchant power plant and to produce thermal energy in the form of high-pressure steam to Texaco California Inc. for thermally enhanced oil recovery operations.

2. The project consists of the power and steam generation equipment, the transmission interconnection, the raw and potable water supply lines, the natural gas pipeline, steam supply facilities serving production wells within an approximate _-mile radius circle around the power plant, and appurtenant facilities.

II. NEED CONFORMANCE

The Sunrise Cogeneration Power Project Application for Certification was accepted on February 17, 1999. At that time, the Public Resources Code prohibited the Energy Commission from certifying a power plant unless the Commission made a finding that the facility was "needed" in accordance with the Commission's integrated assessment of need for new resource additions. (*See,* Pub. Resources Code,// 25523(f) and 25524(a).) The Public Resources Code directed the Commission to do an "integrated assessment of need," taking into account 5- and 12-year forecasts of electricity supply and demand, as well as various competing interests, and to adopt the assessment in a biennial electricity report.

On September 28, 1999, the Governor signed Senate Bill No. 110, which became Chapter 581, Statutes of 1999. This legislation repeals Public Resources Code sections 25523(f) and 25524(a) and amends other provisions relating to the assessment of need for new resources. It thereby removes the requirement that, to certify a proposed facility, the Commission must make a specific finding that the proposed facility is in conformance with the adopted integrated assessment of need. Regarding need-determination, Senate Bill 110 states:

> *Before the California electricity industry was restructured the regulated cost recovery framework for powerplants justified requiring the commission to determine the need for new generation, and site only powerplants for which need was established. Now that powerplant owners are at risk to recover their investments, it is no longer appropriate to make this determination. (Pub. Resources Code,/25009, added by Stats. 1999, ch. 581,/1.)*

Senate Bill 110 took effect on January 1, 2000 (Cal. Const., Art. 4,／8.) As of that date, the Commission is no longer required to determine if a proposed project conforms with an integrated assessment of need. As a result, any application for certification for which the Commission adopts a final decision after January 1, 2000, is not subject to a finding of "need-conformance."

In this case, the Commission's final decision will be made after January 1, 2000. Therefore, because of SB 110, the Commission makes no finding of "need-conformance" with respect to the proposed project.

III. PROJECT ALTERNATIVES

In cases such as the Sunrise project, where the application has been exempted from the Notice of Intention requirements pursuant to Public Resources Code section 25540.6, the Commission is required during the AFC process to examine the feasibility of available site and facility alternatives which substantially lessen the significant adverse impacts of the proposal on the environment. (Cal. Code of Regs., tit. 20,/1765.) This inquiry must also comply with the guidelines implementing the California Environmental Quality Act (CEQA) which require 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 , as well as an evaluation of the no project alternative. [Cal. Code of Regs., tit. 14,/15126 (d).]

The range of alternatives which we are required to consider is governed by a rule of reason . This means that our consideration of alternatives may be limited only to those that would avoid or substantially lessen any of the significant effects while continuing to attain most of the basic objectives of the project, and need not include those alternatives whose effects cannot be reasonably ascertained and whose implementation is remote and speculative. [Cal. Code of Regs., tit. 14,/15126 (d) (5).]

SUMMARY AND DISCUSSION OF THE EVIDENCE

The evidence of record addresses alternatives to the major components of the Sunrise project. This includes generation technology, site selection, and linear facility routing. (10/12/99 RT 38-50; Ex. 1, sec. 5; Ex. 23, p. 343.)

The methodology used to prepare the alternatives analysis included:

- Identifying the basic objectives of the project;
- Providing an overview of the project s potentially significant adverse impacts;
- Identifying and evaluating alternatives to the project;
- Identifying and evaluating alternative locations for sites; and
- Evaluative the impacts of not constructing the project. (Ex. 23, p. 343.)

1. Project Objectives

The evidence presented by both the Applicant and Commission staff indicates that the objectives of the Sunrise project include the following:

- Build and operate a cogeneration facility which would produce high pressure steam for Texaco California, Incorporated s (TCI) thermally enhanced oil recovery operations in western Kern County, California;

- Generate approximately 320 megawatts of electricity which will be sold in the California electricity market through the California Independent System Operator (Cal-ISO);

- Provide an environmentally superior source of electricity; and

- Make a highly efficient use of energy resources. (Ex. 23, p. 343.)

To achieve these ends, the project proponents desire to construct the Sunrise Cogeneration and Power Project near key infrastructure such as transmission lines, supplies of process water and of natural gas. Furthermore, as a cogeneration plant designed to produce steam for oil field operations, the power plant must be connected to the oil field by a steam line generally limited to a length of no more than _-mile. (Ex. 23, p. 345.) In the Applicant s view, the greater efficiency of the cogeneration project will give Sunrise a competitive margin in a deregulated market over even the most efficient, new combined cycle project. (10/12/99 RT 41.)

2. Potentially Significant Adverse Impacts

The environmental impacts of the project are discussed in detail in the individual topic areas of this Decision. However, for the purposes of conducting its alternatives analysis, Commission staff assumed that the project posed potentially significant adverse impacts in the areas of air quality and biological resources, if not adequately mitigated. The project s ability to mitigate such impacts to levels of insignificance is discussed under the respective topics.

3. Technological Alternatives

Applicant s witness compared the Sunrise project to the alternative of a stand-alone combined cycle plant. While the latter produces more electricity per unit of natural gas, its thermal efficiency is approximately 60 percent versus approximately 87 percent claimed efficiency for the proposed cogeneration project. (11/12/99 RT 29.) The cogeneration project also uses less fresh water and produces less wastewater. (11/12/99 RT 39.) Another possible alternative to the project is a simple cycle stand-alone plant. However, it is less efficient than cogeneration technology since it releases its exhaust heat to the atmosphere. Furthermore, such an alternative does not produce industrial steam for the thermal host. (11/12/99 RT 40.)

Staff examined the alternatives of using the principal electric generation technologies that do not burn fossil fuels such as natural gas. These included alternative projects based on geothermal, solar, hydroelectric and wind technologies. Staff concluded that none of the technologies would reliably serve a cogeneration project with its need to be near the industrial steam host. The examination of a cogeneration project sized smaller that the Applicant s proposal also failed to result in a reduction of potential impacts. (Ex. 23, p. 347.)

4. Alternative Locations

The evidence indicates that Commission staff evaluated three alternative locations that met the project objective of efficiently providing steam for oil field operations.[5] These sites were: Sunrise s site alternative located about one mile southwest of the proposed site, the Midway Sunset alternative located on Crocker Springs Road on the northern edge of the Midway Sunset Oil Field, and various other site possibilities within the Midway Sunset Oil Field. (11/12/99 RT 45; Ex. 23, p. 347.)

The analysis of each of these alternatives is detailed in the evidence of record, and indicates that industrial development at these sites is either infeasible or would result in potentially greater environmental impacts than the proposed project. (11/12/99 RT 349.)

The evidence also includes an evaluation of alternative routings for the project s transmission tie line. (Ex. 1, p. 5-10 to 5-15.) The alternatives were proposed as part of the project and are analyzed in the topic section on Transmission System Engineering.

[5] Because one objective of a cogeneration project is to provide steam to its thermal host, a realistic examination of alternative plant locations is limited to the distance from which the cogeneration plant can efficiently pipe steam to the thermal host; approximately _-mile.

5. No Project

Applicant s analysis in the AFC (Ex. 1, p. 5-1) and Staff s no project analysis in the FSA (Ex. 23, p. 349) both conclude that, assuming all project-related environmental impacts are mitigated to a level of insignificance, the no project alternative is not superior to the proposed project because of the energy efficiency and related fuel savings benefits of a cogeneration project. (11/12/99 RT 46.)

FINDINGS AND CONCLUSIONS

Based upon the totality of the evidence of record, including that relating to each topic area contained in other portions of this Decision, we find and conclude as follows:

1. The evidence of record contains an acceptable analysis of a reasonable range of alternatives to the project as proposed.

2. The evidentiary record contains a review of alternative technologies, fuels, linear routings, and the no project alternative.

3. If all Conditions of Certification contained in this Decision are implemented, construction and operation of the Sunrise Cogeneration and Power Project will not create any direct, indirect, or cumulative significant adverse environmental impacts.

4. The no project alternative would not avoid or lessen the creation of a direct, or indirect, or cumulative significant adverse environmental impacts.

We therefore conclude that the evidence of record contains an analysis of possible alternatives to the Sunrise Cogeneration and Power Project, including its appurtenant facilities, which satisfies the requirements of both the Warren-Alquist Act and the California Environmental Quality Act and implementing regulations.

IV. COMPLIANCE AND CLOSURE

Public Resources Code section 25532 requires the Commission to establish a post-certification monitoring system. The purpose of this requirement is to assure that certified facilities are constructed and operated in compliance with applicable laws, ordinances, regulations, standards, as well as the specific Conditions of Certification adopted as part of this Decision.

SUMMARY AND DISCUSSION OF THE EVIDENCE

The evidence of record contains a full explanation of the purposes and intent of the Compliance Plan (Plan). The Plan is the administrative mechanism used to ensure that the Sunrise Cogeneration and Power Project is constructed and operated according to the Conditions of Certification. It essentially describes the respective duties and expectations of the project owner and the Staff Compliance Project Manager (CPM) in implementing the design, construction, and operation criteria set forth in this Decision. Compliance with the Conditions of Certification contained in this Decision is verified through mechanisms such as periodic reports and site visits. The Plan also contains requirements governing the planned closure, as well as the unexpected temporary and unexpected permanent closure, of the project.

The Compliance Plan is composed of two broad elements. The first element is the "General Conditions". These General Conditions:

- Set forth the duties and responsibilities of the Compliance Project Manager (CPM), the project owner, delegate agencies, and others;
- Set forth the requirements for handling confidential records and maintaining the compliance record;
- Establish procedures for settling disputes and making post-certification changes;
- State the requirements for periodic compliance reports and other administrative procedures necessary to verify the compliance status of all Commission imposed conditions; and

- Establish requirements for facility closure.

The second general element of the Plan contains the specific Conditions of Certification . These are found following the summary and discussion of each individual topic area in this Decision. The individual conditions contain the measures required to mitigate potentially adverse project impacts associated with construction, operation and closure to an insignificant level. Each condition also includes a verification provision describing the method of assuring that the condition has been satisfied.

The contents of the Compliance Plan are intended to be read in conjunction with any additional requirements contained in the individual Conditions of Certification.

FINDINGS AND CONCLUSIONS

The evidence of record establishes:

1. The Compliance Plan and the specific Conditions of Certification contained in this Decision assure that the Sunrise Cogeneration and Power Project will be designed, constructed, operated, and closed in conformity with applicable law.

2. Requirements contained in the Compliance Plan and in the specific Conditions of Certification are intended to be read in conjunction with one another.

We therefore conclude that the compliance and monitoring provisions incorporated as a part of this Decision satisfy the requirements of Public Resources Code section 25532. Furthermore, we adopt the following Compliance Plan as part of this Decision.

COMPLIANCE PLAN

GENERAL CONDITIONS OF CERTIFICATION

COMPLIANCE PROJECT MANAGER (CPM) RESPONSIBILITIES

A CPM will oversee the compliance monitoring and shall be responsible for:

1. Ensuring that the design, construction, operation, and closure of the project facilities is in compliance with the terms and conditions of the 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 Commission and will consult with appropriate responsible agencies and the 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, it should be understood that the approval would involve all appropriate staff and management.

The Commission has established a toll free 800 number for the public to use for notifying the Commission about power plant construction and operation related complaints or events of concern. The telephone number is **1-800-858-0784.**

Pre-Construction and Pre-Operation Compliance Meeting

The CPM may schedule 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 Commission s and the project owner s technical staff to review the status of all pre-construction or pre-operation requirements contained in the 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 shall ensure, to the extent possible, that Commission conditions will not delay the construction and operation of the plant due to oversight or inadvertence and to preclude any last minute, unforeseen issues from arising.

Commission Record

The Commission shall maintain as a public record in either the Compliance file or Docket 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 Commission; and,

4) All petitions for project or condition changes and the resulting staff or Commission action taken.

PROJECT OWNER RESPONSIBILITIES

It is the responsibility of the project owner and any successors in interest to ensure that the general compliance conditions and the Conditions of Certification are satisfied. The general compliance conditions regarding post-certification changes specify measures that the project owner and any successors in interest must take when requesting changes in the project design, compliance conditions, or ownership. Failure to comply with any of the Conditions of Certification or the general compliance conditions may result in revocation of Commission certification, an administrative fine, or other action as appropriate.

Access

The CPM, designated staff, and delegated agencies or consultants, shall be guaranteed and granted 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.

Compliance Record

The project owner shall maintain project files on-site or at an alternative site approved by the CPM, for the life of the project. The files shall contain copies of all as-built drawings, all documents submitted as verification for conditions, and all other project-related documents for the life of the project, unless a lesser period is specified by the Conditions of Certification.

Commission staff and delegate agencies shall, upon request to the project owner, be given access to the files.

Compliance Verifications

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
Sunrise Cogeneration and Power Project Project (98-AFC-4C)
California Energy Commission
1516 Ninth Street (MS-2000)
Sacramento, CA 95814

If the project owner desires Commission staff action by a specific date, it shall so state in its submittal and include a detailed explanation of the effects on the project if this date is not met.

Each Condition of Certification is followed by a means of verification. The verification describes the 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, in most cases without Commission approval. [See Title 20, California Code of Regulations, ⁄1760.]

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) Appropriate letters from delegate agencies verifying compliance;

3) Commission staff audit of project records; and/or

4) Commission staff inspection of mitigation and/or other evidence of mitigation.

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 Commission Decision. During construction, the project owner or authorized agent shall 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 compliance reports.

Compliance Matrix

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 compliance conditions 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., sixty (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) An indication of the compliance status for each condition (e.g., not started , in progress or completed date).

Completed or satisfied conditions do not need to be included in the compliance matrix after they have been identified as completed/satisfied in at least one monthly or annual compliance report.

Monthly Compliance Report

During construction of the project, the project owner or authorized agent shall submit Monthly Compliance Reports 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 should be submitted as attachments to the Monthly Compliance Report;

3) An initial, and thereafter updated, compliance matrix which shows the status of all Conditions of Certification (fully satisfied and/or closed conditions do not need to be included in the matrix after they have been reported as closed);

4) A list of conditions which have been satisfied during the reporting period, and a description or reference to the actions which 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 with, or permits issued by, other governmental agencies during the month;

8) A projection of project compliance activities scheduled during the next two months;

9) A listing of the month s additions to the on-site compliance file; and

10) Any requests to dispose of items that are required to be maintained in the project owner s compliance file.

The first Monthly Compliance Report is due the month following the Commission business meeting date that the project was approved, unless the project owner notifies the CPM in writing that a delay is warranted. 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 is located at the end of this section.)*

Annual Compliance Report

After the air district has issued a Permit to Operate, the project owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports. The Permit to Operate is issued following the satisfactory completion of the required source test.

The annual reports are for each year of commercial operation and are due to the CPM each year on a date designated 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 which shows the status of all Conditions of Certification (fully satisfied and/or closed conditions do not need to be included in the matrix after they have been reported as closed);

2) A summary of the current project operating status and an explanation of any significant changes to facility operations during the year (e.g., total hours of operation, scheduled and unscheduled maintenance and any major repairs);

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 should be submitted as attachments to the Annual Compliance Report;

4) A cumulative listing of all post-certification changes approved by the 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 made 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, and

9) An evaluation of the on-site contingency plan for unexpected facility closure, including any suggestions necessary for bringing the plan up to date [see General Conditions for Facility Closure addressed later in this section].

Confidential Information

Any information deemed confidential by the project owner shall be submitted to the Commission s Docket with an application for confidentiality pursuant to Title 20, California Code of Regulations, ⁄ 2505(a). Any information determined to be confidential shall be kept confidential as provided for in Title 20, California Code of Regulations,⁄2501 et seq .

Department of Fish and Game Filing Fee

Pursuant to the provisions of Fish and Game Code,⁄711.4, the project owner shall pay a filing fee in the amount of eight hundred and fifty dollars ($850) to the Department of Fish and Game. The payment instrument shall be provided to the Commission s Project Manager at the time of project certification and shall be made payable to the California Department of Fish and Game. The Commission s Project Manager will submit the payment to the Office of Planning and Research as payment to the Secretary of the Resources Agency at the time of filing of the notice of decision pursuant to Public Resources Code,⁄21080.5.

FACILITY CLOSURE

Introduction

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

which provide the flexibility to deal with the specific situation and project setting which will 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, unexpected temporary closure and unexpected permanent closure**.**

Planned Closure

This planned closure occurs at the end of a project s life, 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.

Unexpected Temporary Closure

This unplanned 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.

Unexpected Permanent Closure

This unplanned closure occurs if the project owner closes the facility suddenly and/or unexpectedly, on a permanent basis. This includes unexpected closure where the owner remains accountable for implementing the on-site contingency plan. It can also include unexpected closure where the project owner is unable to implement the contingency plan and the project is essentially abandoned.

General Conditions for Facility Closure

Planned Closure

In order that a planned facility closure does not create adverse impacts, a closure process that provides for careful consideration of available options, 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 Commission for review and approval at least twelve months prior to commencement of closure activities (or other period of time agreed to by the CPM). 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 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 all facilities and equipment that will a) be immediately removed from the site after closure (e.g., hazardous materials); b) temporarily remain on the site after closure (e.g., until the item is sold or scrapped); and c) permanently remain on the site after closure. The plan must explain both why the item cannot be removed and why it does not present a risk of harm to the environment and the public health and safety to remain *in situ* for an indefinite period.

4. Address conformance of the plan with all applicable laws, ordinances, regulations, standards, local/regional plans in existence at the time of facility closure, and applicable Conditions of Certification.

Workshops and/or hearings may be conducted as part of the Commission s approval procedure if there are significant issues associated with the proposed facility closure plan, or the desires of local officials or interested parties are inconsistent with the plan.

In addition, prior to submittal of the proposed facility closure plan, a meeting shall be held between the project owner and the Commission CPM for the purpose of discussing the specific contents of the plan.

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 or the environment, but shall not commence any other closure activities, until Commission approval of the facility closure plan is obtained.

Unexpected Temporary Closure

In order to ensure that public health and safety and the environment are protected in the event of an unexpected 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, 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 sixty (60) days (or other time agreed to by the CPM) before commencement of commercial operation. The approved plan must be in place prior to commercial operation of the facilities and shall be kept at the site at all times.

The project owner, in consultation with the CPM, shall update the on-site contingency plan as necessary. The CPM may recommend revisions to the on-site contingency plan over the life of the project. In the annual compliance reports submitted to the Commission, the project owner shall 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 and encroachment. In addition, for temporary 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.

In addition, consistent with requirements under unexpected permanent closure addressed below, the nature and extent of insurance coverage, and major equipment warranties must be included in the on-site contingency plan. The status of the insurance coverage and major equipment warranties must also be updated in the annual compliance reports.

In the event of an unexpected temporary closure, the project owner shall notify the CPM, as well as other responsible agencies, by telephone, fax, and 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 circumstances and the expected duration of the closure.

If a temporary closure is likely to be permanent, or of a duration of more than twelve months, a closure plan consistent with that for a planned closure shall be submitted to the CPM within 90 days of the determination. The CPM and project owner may agree to a period of time other than 90 days.

Unexpected Permanent Closure

In order to ensure that public health and safety and the environment are protected in the event of an unexpected permanent facility closure, it is essential to have an on-site contingency plan in place for unexpected permanent closure. This may be a part of the on-site contingency plan for unexpected temporary closure. The on-site contingency plan will help to ensure that all necessary steps to mitigate public health and safety, and environmental impacts, are taken in a timely manner (even in an unlikely abandonment scenario).

The project owner shall submit the on-site contingency plan for CPM review and approval. The plan shall be submitted no less that sixty (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 facilities and shall be kept at the site at all times.

The project owner, in consultation with the CPM, shall update the on-site contingency plan as necessary. The CPM may recommend revisions to the on-site contingency plan over the life of the project. In the annual compliance reports submitted to the Commission, the project owner shall 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 and encroachment. In addition, 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.

Furthermore, the on-site contingency plan shall address how the project owner will ensure that all required closure steps will be successfully completed in the event of abandonment. 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 unexpected permanent closure, the project owner shall notify the CPM, as well as other responsible agencies, by telephone, fax, and e-mail, within twenty-four (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.

DELEGATE AGENCIES

To the extent permitted by law, the Commission may delegate authority for compliance verification and enforcement to various state and local agencies that have expertise in subject areas where specific requirements have been established as a Condition of Certification. If a delegate agency does not participate in this program, the Commission staff will establish an alternative method of verification and enforcement. The Commission reserves the right to direct Staff to independently verify compliance.

In performing construction and operation monitoring of the project, the Commission staff acts as, and has the authority of, the Chief Building Official (CBO). The Commission staff retains this authority when delegating to a local CBO. Delegation of authority for compliance verification includes the authority for enforcing codes, the responsibility for code interpretation as necessary, and the authority to use discretion as necessary in implementing the various codes and standards.

Whenever an agency s responsibility for a particular area is transferred by law to another entity, all references to the original agency shall be interpreted to apply to the successor entity.

ENFORCEMENT

The Commission s legal authority to enforce the terms and conditions of its Decision is specified in Public Resources Code, // 25534 and 25900. The 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 Commission Decision.

Moreover, to ensure compliance with the terms and Conditions of Certification and applicable laws, ordinances, regulations, and standards, 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 Commission pursuant to Title 20, California Code of Regulations, ⁄ 1230 et seq ., but in many instances the noncompliance can be resolved by using the informal dispute resolution process. Both the informal and formal complaint procedure are described below:

Informal Dispute Resolution Procedure

The following procedure is designed to informally resolve disputes concerning the interpretation of this compliance plan. The project owner, the Commission, or any other party, including members of the public, may initiate this procedure for resolving a dispute. Disputes may pertain to actions, inactions or decisions made by any party, including the Commission s delegate agents.

This procedure may precede the more formal complaint and investigation procedure specified in Title 20, California Code of Regulations, ⁄ 1230 et seq., 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 Commission, although the agreed upon resolution may result in a project owner, or in some cases the 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 referred to the full 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 Commission to conduct an informal investigation of alleged noncompliance with the 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 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 required to promptly investigate the matter and, within seven (7) 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 forty-eight (48) hours, followed by a written report filed within seven (7) working days.

Request for Informal Meeting

If either the party requesting an investigation or the Commission staff is not satisfied with the project owner s report, investigation of the event, or corrective measures

undertaken, either party may submit a written request to the CPM for a meeting with the project owner. Such request shall be made within fourteen (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 Commission staff and staff of any other agency 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 a summary memorandum which fairly and accurately identifies the positions of all parties and any conclusions reached. Copies shall be distributed to all in attendance and to the project file, 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

The project owner, Commission staff, or any other party may file a complaint or a request for an investigation with the Commission s Chief Counsel. Disputes may pertain to actions or decisions made by any party including the Commission s delegate agents. Requirements for filing a complaint or a request for investigation and a description of how they are processed are in Title 20, California Code of Regulations, section 1230 et seq. The formal process may be in lieu of or in addition to the informal process.

Within thirty (30) days after receipt of a written complaint or a request for investigation, the Chairperson or, if one is assigned, the Committee may grant a hearing on the matter, consistent with the requirements of noticing provisions. The Commission shall have the authority to consider all relevant facts involved and make any appropriate orders consistent with its jurisdiction (Title 20, California Code of Regulations, sections 1232 - 1236).

POST CERTIFICATION CHANGES TO THE COMMISSION DECISION: AMENDMENTS, STAFF CHANGES AND VERIFICATION CHANGES

The project owner must petition the Commission, pursuant to Title 20, California Code of Regulations, section 1769, to 1) delete or change a Condition of Certification; 2) modify the project design or operational requirements; 3) transfer ownership or operational control of the facility; or 4) change a condition verification requirement.

The petition for a change must be submitted to the Commission s Docket in accordance with Title 20, California Code of Regulations, section 1209. The criteria under Section 1769 that determine which type of change process applies are explained below.

Amendment

A proposed change will be processed as an amendment requiring Commission approval if it involves a change to the requirement or protocol (and in some cases the verification) portion of a Condition of Certification, an ownership or operator change, or a potential significant environmental impact.

Insignificant Staff Change

The proposed change will be processed as an insignificant staff change, not requiring Commission approval, if it does not require changing the language in a Condition of Certification, does not have a potential significant environmental impact, and will not cause the project to violate laws, ordinances, regulations or standards.

Verification Change

The proposed change will be processed as a verification or insignificant change if it involves only the language in the verification portion of the Condition of Certification. This procedure can only be used to change verification requirements that are of an administrative nature, usually the timing of a required action. In the event that verification language contains technical requirements, the proposed change must be processed as an amendment requiring Commission approval.

KEY EVENT LIST

PROJECT _____ DATE ENTERED _____

DOCKET # _____ PROJECT MANAGER _____

EVENT DESCRIPTION	***DATE ASSIGNED***
Date of Certification	
Start of Construction	
Completion of Construction	
Start of Operation (1st Turbine Roll)	
Start of Rainy Season	
End of Rainy Season	
Start T/L Construction	
Complete T/L Construction	
Start Fuel Supply Line Construction	
Complete Fuel Supply Line Construction	
Start Rough Grading	
Complete Rough Grading	
Start of Water Supply Line Construction	
Complete Water Supply Line Construction	
Start Implementing Erosion Control Measures	
Complete Implementing Erosion Control Measures	

V. ENGINEERING ASSESSMENT

The broad engineering assessment conducted for the Sunrise Cogeneration and Power Project is comprised of individual analyses affecting the facility design, as well as the efficiency and the reliability of the proposed power plant. The subjects of this assessment include not only the power generating equipment, but also other project-related elements such as the associated linear facilities (transmission line, the natural gas supply pipeline, the water supply pipelines, waste water lines and steam line).

A. FACILITY DESIGN

SUMMARY AND DISCUSSION OF THE EVIDENCE

The facility design portion of the engineering assessment combines four technical topic areas: civil engineering; structural engineering; mechanical engineering, and electrical engineering. (10/12/99 RT 65, 83; see also Ex. 1, sections 2.2, 2.3, 2.4, 9.0, Appendix I, parts 1 through 8; and portions of Ex. 3, 5, 6, 7, and 21; also Ex. 23, pp. 295-323.) The purpose of analyzing facility design is to assure that the project will likely be designed and built to applicable engineering laws, ordinances, regulations, and standards. The Commission also establishes a process to verify that the project complies with these measures as it is constructed. The Commission reviews the Applicant s proposed design criteria, identifies the need for any special design features, and crafts a compliance monitoring program based on a set of Conditions of Certification. (10/12/99 RT 65.)

The project site is located on a 20-acre parcel in Section 23, Township 31, South Range 22 East in western Kern County, California. Sunrise is located in seismic zone 4, the highest seismic shaking zone in the country. (Ex. 23, p. 296.) The Applicant proposes that all major components of the project will be supported on

reinforced concrete mat foundations at grade. Because the soils at the plant site may be subject to hydrocompaction, Staff and Applicant agreed that alternatives to the reinforced concrete mat foundations will be used were appropriate. Such alternatives could include pile foundations or over-excavation of the soil and replacement with engineered fill while minimizing water intrusion into potentially collapsible soils. (10/12/99 RT 85; Exs. 22, 23, p. 299.)

Mechanical features of the project include two GE Frame 7FA combustion turbines generators (CTG s), two unfired heat recovery steam generators (HRSG s), three feedwater pumps, one booster boiler feedwater pump, one feedwater storage tank, fire protection systems, two generator step-up transformers, two unit auxiliary transformers, a distributed control system, a common services building, an approximate 23-mile 230 kV transmission line, and associated auxiliary equipment, systems and facilities. (Ex. 1, sec. 2.) The Sunrise project is expected to have an overall annual availability of approximately 92 to 98 percent. (Ex. 22.)

Exhaust gas from each CTG will flow directly through an unfired single-pass HRSG with a Selective Catalytic Reduction (SCR) system, before passing through an exhaust stack. The SCR system will use anhydrous ammonia for the NO_x emissions reduction process. The ammonia will be stored on-site in a tank designed to seismic zone 4 design standards. (10/12/99 RT 87, 91.) Each HRSG will be designed to produce steam for Texaco California, Inc. (TCI) steam injection wells used for enhanced oil recovery (EOR). Since the project will not incorporate HRSG by-pass stacks, the HRSGs will generate steam whenever the associated CTG s are operating. (Ex. 23, p. 299.) Commission staff determined that the Applicant is relying on the appropriate laws, ordinances, regulations, and standards (LORS) to ensure that the project is properly designed. Staff has proposed Conditions of Certification to monitor Applicant s compliance with the standards. (Ex. 23, p. 300.)

The major electrical equipment associated with the project includes multiple transmission line alternatives to interconnect the Sunrise project to the grid at PG&E s Midway substation. Route B is 23.3 miles long and is the Applicant s preferred route. Route F is a 24.2 mile long alternative which would connect the Sunrise project to the proposed La Paloma substation, connecting La Paloma and Midway with a joint-ownership transmission line. Other major features include generators, power control wiring, protective relaying, grounding systems, cathodic protection systems and site lighting. (*Id.*) Staff concluded that the project s electrical systems could be designed and constructed in accordance with applicable LORS in a manner which protects the environment as well as the public health and safety. Staff proposed Conditions of Certification to monitor compliance with applicable standards.

The evidence of record concerning design of the facility also includes the ancillary linear facilities. A new 60-foot natural gas pipeline will connect the project with an existing TCI gas pipeline. The primary project water supply will be pretreated, produced water from adjacent oil field operations. The West Kern Water District (WKWD) will pipe a small quantity of fresh water to the site. Small quantities of non-hazardous waste water will be directed to a new waste water line, approximately 600 feet west of the site to the TCI Main Utility corridor and ultimately to the Valley Waste System. A steam line of approximately 600 feet in length and 24 inches in diameter will interconnect the project with the TCI main utility corridor. (Ex. 23, p. 302.)

The testimony of record indicates that the Conditions of Certification will ensure that the final design and construction of the project complies with applicable standards. The Conditions contain requirements which specify the roles, qualifications, and responsibilities of engineers overseeing project design and construction. The Conditions also require that no element of construction proceeds without approval from the local building official and that qualified

special inspectors perform the appropriate inspections required by the California Building Code.[6] (10/12/99 RT 65.)

Finally, the testimony addresses potential project closures under three scenarios: planned closure, unexpected temporary closure, and unexpected permanent closure. The testimony of record indicates that the general closure provisions contained in the Compliance Plan and supplemented by Condition of Certification **GEN-9** are sufficient to adequately address and minimize any potential adverse impacts associated with project closure. (10/12/99 RT 65; Ex. 23, p. 303.)

FINDINGS AND CONCLUSIONS

Based upon the uncontroverted evidence of record, we find and conclude as follows:

1. The evidence of record contains sufficient information to establish that the proposed facility can be designed and constructed in conformity with the applicable laws, ordinances, regulations, and standards set forth in the appropriate portion of Appendix A of this Decision.

2. The Conditions of Certification set forth below are necessary to ensure that the project is designed and constructed both in accordance with applicable law and in a manner that protects environmental quality and public health and safety.

3. The Facility Design aspects of the proposed project do not create potential cumulative impacts.

4. The Conditions of Certification below and the provisions of the Compliance Plan contained in this Decision set forth requirements to be followed in the event of the planned, or the unexpected temporary, or the unexpected permanent closure of the facility.

We therefore conclude that with the implementation of the Conditions of Certification listed below, the Sunrise Cogeneration and Power Project is likely to

[6] In this case, the local Chief Building Official serves as a delegate of the Commission.

be designed and constructed in conformity with applicable laws pertinent to its geologic, and its civil, structural, mechanical, and electrical engineering aspects.

CONDITIONS OF CERTIFICATION

GEN-1 The project owner shall design, construct and inspect the project in accordance with the 1998 California Building Code (CBC)[7] and all other applicable LORS in effect at the time initial design plans are submitted to the Chief Building Official (CBO) for review and approval. The CBC in effect is that edition that has been adopted by the California Building Standards Commission and published at least 180 days previously.

In the event that the SCPP is submitted to the CBO when a successor to the 1998 CBC is in effect, the 1998 CBC 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.

Verification: Within 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) after receipt of the Certificate of Occupancy, the project owner shall submit to the 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 for facility design. The project owner shall provide the CPM a copy of the Certificate of Occupancy within 30 days of receipt from the CBO [1998 CBC, Section 109 — Certificate of Occupancy.]

GEN-2 The project owner shall furnish to the Energy Commission 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 description and list of proposed submittal packages for design, calculations, and specifications for major structures and equipment (see a list of major structures and equipment below). To facilitate audits by Energy Commission staff, the project owner shall provide designated packages to the CPM when requested.

[7] The Sections, Chapters, Appendices and Tables, unless otherwise stated, refer to the Sections, Chapters, Appendices and Tables of the 1998 California Building Code (CBC).

Table 1: Major Equipment List

Quantity	Description	Size/Capacity*	Remarks
2	Combustion Turbine (CT).	164.2 MW.	Dry low No_X combustion control and starter package.
2	CT inlet filter.		Two-stage, media type.
2	Inlet air cooling system.		Evaporative type.
2	Fuel gas scrubbers.	43.80 MMSCFD.	340 psig minimum inlet pressure.
2	Heat Recovery Steam Generator (HRSG).	900,000 lb./hr minimum.	
2	HRSG stack.		19 dia. X 100 high.
2	Selective catalytic reduction (SCR).		Sized to achieve BACT/LEAR.
2	Ammonia injection skid.		Two blowers per HRSG.
1	Anhydrous ammonia storage tank.	5,300 gal.	To injection skid.
3	HRSG feed pump.	2,050 gpm.	From tank to HRSGs.
1	Feedwater storage tank.	1.4 million gal.	To feed water pumps.
1	Demineralized water storage tank.	18,800 gal.	
2	Generator transformers.	18/230 kV.	To Sunrise Substation.
2	Auxiliary transformer.	4.16/18 kV.	To Cogen plant loads.

Table 2: Major Structures, Equipment and Associated Foundations

Quantity	Description	Dimensions (ft)*		
		Length	Width	Height
2	Combustion gas turbine generator and starter package (CT).	64	30	30
2	CT air inlet filter with air cooling system.	40	30	57
2	Generator with enclosure.	36	25	30
2	Fuel gas scrubber.	--	2.5 dia.	7
2	Heat Recovery Steam Generator (HRSG).	100	70	30
2	HRSG stack.		19 dia.	100
2	Selective catalytic reduction skid (SCR).	10	6	6
2	Generator breaker.	12	10	8
4	Auxiliary transformer.	14	10	14
2	Step-up transformer.	35	18	30
1	Demineralized water storage tank.	--	12 dia.	24
1	Feedwater storage tank.	--	67dia.	40
1	Anhydrous ammonia storage tank.	25	6 dia.	--
1	Switchyard, buses and towers.	--	22 (3 phases)	28 (high bus)
1	Electrical/equipment building.	35	20	12
1	Wastewater collection basin.	26.5	8	15
1	Switchyard control building (Sunrise).	40	20	14
1	Common Service Building.	152	30	20

***All capacities and dimensions are approximate and may change during project final design.**

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 rough grading, the project owner shall submit the schedule, a Master Drawing List, and a Master Specifications List to the CBO and to the CPM. The project owner shall provide schedule updates in the Monthly Compliance Report.

GEN-3 The project owner shall make payments to the CBO for design review, plan check and construction inspection, equivalent to the fees listed in the 1998 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. If Kern County has adjusted the CBC fees for design review, plan check and construction inspection, the project owner shall pay the adjusted fees.

Verification: The project owner shall make the required payments to the CBO at the time of submittal of the plans, design calculations, specifications, or soil reports. 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 fee has 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 of Regs., tit. 24,/4-209, Designation of Responsibilities).]

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.

Protocol: The RE shall:

1. Monitor construction progress to ensure compliance with LORS;

2. Ensure that construction of all the facilities 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 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 name, qualifications 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 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.

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 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 who is fully competent and proficient in the design of power plant structures and equipment supports; D) a mechanical engineer; and E) an electrical engineer. [California Business and Professions Code, section 6704 et seq., and sections 6730 and 6736. Requires 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 project owner shall submit to the CBO for review and approval, the names, qualifications and registration numbers of all engineers assigned to the project. [1998 CBC, Section 104.2, Powers and Duties of Building Official.]

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.

Protocol: A: The civil engineer shall:

1. Design, or be responsible for design, stamp, and sign all plans, calculations, and specifications for proposed site work, civil works, and related facilities. 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

2. 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.

Protocol: B: The geotechnical engineer or civil engineer, experienced and knowledgeable in the practice of soils engineering, shall:

1. Review all the engineering geology reports, and prepare final soils grading report;

2. Prepare the soils engineering reports required by the 1998 CBC, Appendix Chapter 33, Section 3309.5 — Soils Engineering Report, and Section 3309.6 — Engineering Geology Report;

3. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with the requirements set forth in the 1998 CBC, Appendix Chapter 33, section 3317, Grading Inspections;

4. Recommend field changes to the civil engineer and RE;

5. Review the geotechnical report, field exploration report, laboratory tests, and engineering analyses detailing the nature and extent of the site soils that may be susceptible to liquefaction, rapid settlement or collapse when saturated under load; and

6. Prepare reports on foundation investigation to comply with the 1998 CBC, Chapter 18 section 1804, Foundation Investigations.

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. [1998 CBC, section 104.2.4, Stop orders.]

Protocol: C: 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 LORS;

4. Evaluate and recommend necessary changes in design; and

5. Prepare and sign all major building plans, specifications and calculations.

Protocol: D: 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.

Protocol: E: 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 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.

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 1998 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.

Protocol: 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; 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 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 The project owner shall keep the CBO informed regarding the status of engineering and construction. If any discrepancy in design and/or construction is discovered, the project owner shall document the discrepancy and recommend the corrective action required. The discrepancy documentation shall become a controlled document and 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 submit monthly construction progress reports to the CBO and CPM. The project owner shall transmit a copy of the CBO's approval or disapproval of any corrective action taken to resolve a discrepancy 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.

GEN-8 The project owner shall obtain the CBO's final approval of all completed work. The project owner shall request the CBO to inspect the completed structure and review the submitted documents. When the work and the "as-built" and "as graded" plans conform to the approved final plans, the project owner shall notify the CPM regarding the CBO's final approval. The marked up "as-built" drawings for the construction of structural and architectural work shall be submitted to the CBO. Changes approved by the CBO shall be identified on the "as-built" drawings. [1998 CBC, Section 108, Inspections.]

Verification: Within 15 days of the completion of any work, the project owner shall submit to the CBO, with a copy to the CPM, (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.

GEN-9 The project owner shall file a closure/decommissioning plan with Kern County and the CPM for review and approval at least 12 months (or other mutually agreed to time) prior to commencing the closure activities. If the project is abandoned before construction is completed, the project owner shall return the site to its original condition.

Protocol: The closure plan shall include a discussion of the following:

1. The proposed closure/decommissioning activities for the project and all appurtenant facilities constructed as part of the project;

2. All applicable LORS, all local/regional plans, and a discussion of the conformance of the proposed decommissioning activities to the applicable LORS and local/regional plans;

3. Activities necessary to restore the site if the SCPP decommissioning plan requires removal of all equipment and appurtenant facilities; and

4. Closure/decommissioning alternatives, other than complete restoration of the site.

Verification: At least 12 months prior to closure or decommissioning activities, the project owner shall file a copy of the closure/decommissioning plan with Kern County and the CPM for review and approval. Prior to the submittal of the closure plan, a meeting shall be held between the project owner and the CPM for discussing the specific contents of the plan.

CIVIL-1 Prior to the start of site grading, 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 as required by the 1998 CBC, Appendix Chapter 33, Section 3309.5, Soils Engineering Report and Section 3309.6, Engineering Geology Report.

Verification: At least 15 days prior to the start of site grading, the project owner shall submit the documents described above to the CBO for 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 geotechnical engineer or 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. [1998 CBC, Section 104.2.4, Stop orders.]

Verification: The project owner shall notify the CPM, within five days, when earthwork and construction is stopped as a result of unforeseen adverse geologic/soil conditions. Within five days of the CBO's approval, the project owner shall provide to the CPM a copy of the CBO's approval to resume earthwork and construction in the affected areas.

CIVIL-3 The project owner shall perform inspections in accordance with the 1998 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 shall be subject to inspection by the CBO and the CPM.

If, in the course of inspection, it is discovered that the work is not being done in accordance with the approved plans, the discrepancies shall be reported immediately to the resident engineer, the CBO, and the CPM. The project owner shall prepare a written report detailing all discrepancies and non-compliance items, and the proposed corrective action, and send copies to the CBO and the CPM.

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. 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 facilities, the project owner shall obtain the CBO's approval of the final "as-graded" grading plans, and final "as-built" plans for the erosion and sedimentation control facilities. [1998 CBC, Section 109, Certificate of Occupancy.]

Within 30 days of the completion of the erosion and sediment control mitigation and drainage facilities, the project owner shall submit to the CBO 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. The project owner shall submit a copy of this report to the CPM in the next Monthly Compliance Report.

STRUC-1 Prior to the start of any increment of construction, the project owner shall submit to the CBO for review and approval the applicable designs, plans and drawings, and a list of those project structures, components and major equipment items that will undergo dynamic structural analysis. Designs, plans and drawings shall be those for:

1. Major project structures;
2. Major foundations, equipment supports and anchorage;
3. Large field fabricated tanks;
4. Turbine/generator pedestal; and
5. Switchyard structures.

Protocol: The project owner shall:

1. Obtain agreement with the CBO and California Energy Commission staff on the list of those structures, components and major equipment items to undergo dynamic structural analysis;

2. Meet the pile design requirements of the 1998 CBC. Specifically, Section 1807, General Requirements, Section 1808, Specific Pile Requirements, and Section 1809, Foundation Construction (in seismic zones 3 and 4);

3. 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, [1998 CBC, Section 108.4, Approval Required];

4. Submit to the CBO the required number of copies of the structural plans, specifications, calculations, and other required documents of the designated major structures at least 90 days (or a lesser number of days mutually agreed to by the project owner and the CBO), prior to the start of on-site fabrication and installation of each structure, equipment support, or foundation, [1998 CBC, Section 106.4.2, Retention of plans and Section 106.3.2, Submittal documents.]; and

5. 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. [1998 CBC, Section 106.3.4, Architect or Engineer of Record.]

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 any increment of construction, the project owner shall submit to the CBO, with a copy to the CPM, the responsible design engineer's signed statement that the final design plans, specifications and calculations conform with all of the requirements set forth in the Energy Commission's Decision.

If the CBO discovers non-conformance with the stated requirements, the project owner shall resubmit the corrected plans to the CBO within 20 days of receipt of the nonconforming submittal with a copy of the transmittal letter to the CPM.

The project owner shall submit to the CPM a copy of a statement from the CBO that the proposed structural plans, specifications, and calculations have been approved and are in conformance with the requirements set forth in the applicable LORS.

STRUC-2 The project owner shall submit to the CBO the required number of sets of the following:

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 structure activities requiring special inspections shall be in accordance with the 1998 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 to the CBO, with a copy of the transmittal letter to the CPM. 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 1998 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 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 1998 CBC shall, at a minimum, be designed to comply with Occupancy Category 2 of the 1998 CBC. Chapter 16, Table 16—K of the 1998 CBC requires use of the following seismic design criteria: I˚=˚1.25, I_p = 1.5 and I_w = 1.15.

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 installation of the tanks or vessels containing the above specified quantities of highly toxic or explosive substances that would be hazardous to the safety of the general public if released, the project owner shall submit to the CBO for 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 Prior to the start of any increment of piping construction, the project owner shall submit, for CBO review and approval, the proposed final design drawings, specifications and calculations for each plant piping system (exclude domestic water, refrigeration systems, and small bore piping, i.e., piping and tubing with a diameter equal to or less than two and one-half inches). The submittal shall also include the applicable QA/QC procedures. The project owner shall design and install all piping, other than domestic water, refrigeration, and small bore piping to the applicable edition of the CBC. Upon completion of construction of any piping system, the project owner shall request the CBO's inspection approval of said construction. [1998 CBC, Section 106.3.2, Submittal documents, Section 108.3, Inspection Requests.]

Protocol: The responsible mechanical engineer shall submit a signed and stamped statement to the CBO when:

1. The proposed final design plans, specifications and calculations conform with all of the piping requirements set forth in the Energy Commission s Decision; and

2. All of the other piping systems, except domestic water, refrigeration systems and small bore piping have been designed, fabricated and installed in accordance with all applicable ordinances, regulations, laws and industry standards, including, as applicable:

- 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); and
- Specific City/County code.

The CBO may require the project owner to employ special inspectors to report directly to the CBO to monitor shop fabrication or equipment installation. [1998 CBC, Section 104.2.2, Deputies.]

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 any increment of piping construction, the project owner shall submit to the CBO for approval, with a copy of the transmittal letter to the CPM, the proposed final design plans, specifications, calculations and quality control procedures for that increment of construction of piping systems, including a copy of the signed and stamped engineer's certification of conformance with the Energy Commission s Decision. The project owner shall transmit a copy of the CBO's inspection approvals to the CPM in the Monthly Compliance Report following completion of any inspection.

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. [1998 CBC, Section 108.3 — Inspection Requests.]

Protocol: 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 a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of on-site fabrication or installation of any pressure vessel, the project owner shall submit to the CBO for review and approval, the documents listed above, with a copy of the transmittal letter to the CPM.

The project owner shall send copies of the CBO plan check approvals to the CPM in the following Monthly Compliance Report. The project owner shall also transmit a copy of the CBO's and/or Cal-OSHA inspection approvals to the CPM in the Monthly Compliance Report following completion of any inspection.

MECH-3 Prior to the start of construction of any heating, ventilating, air conditioning (HVAC) or refrigeration system, the project owner shall submit to the CBO for review and approval the design plans, specifications, calculations and quality control procedures for that 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 applicable edition of the CBC. 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. [1998 CBC, Section 108.7, Other Inspections; Section 106.3.4, Architect or Engineer of Record.]

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 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 applicable edition of the CBC, with a copy of the transmittal letter to the CPM.

The project owner shall send copies of CBO comments and approvals to the CPM in the next Monthly Compliance Report. The project owner shall transmit a copy of the CBO's inspection approvals to the CPM in the Monthly Compliance Report following completion of any inspection.

MECH-4 Prior to the start of each increment of plumbing construction, the project owner shall submit for CBO's approval the final design plans,

specifications, calculations, and QA/QC procedures for all plumbing systems, potable water systems, drainage systems (including sanitary drain and waste), toilet rooms, building energy conservation systems, and temperature control and ventilation systems, including water and sewer connection permits issued by the local agency. Upon completion of any increment of construction, the project owner shall request the CBO's inspection approval of said construction. [1998 CBC, Section 108.3, Inspection Requests, Section 108.4, Approval Required.]

Protocol: The project owner shall design, fabricate and install:

1. Plumbing, potable water, all drainage systems, and toilet rooms in accordance with Title 24, California Code of Regulations, Division 5, Part 5 and the California Plumbing Code (or other relevant section(s) of the currently adopted California Plumbing Code and Title 24, California Code of Regulations); and

2. Building energy conservation systems and temperature control and ventilation systems in accordance with Title 24, California Code of Regulations, Division 5, Chapter 2-53, Part 2.

The final plans, specifications and calculations shall clearly reflect the inclusion of approved criteria, assumptions and methods used to develop the design. In addition, the responsible mechanical engineer shall stamp and sign all plans, drawings and calculations and submit a signed statement to the CBO that the proposed final design plans, specifications and calculations conform with all of the requirements set forth in the Energy Commission s Decision.

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 construction of any of the above systems, the project owner shall submit to the CBO the final design plans, specifications and calculations, including a copy of the signed and stamped statement from the responsible mechanical engineer certifying compliance with the applicable edition of the CBC, and send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

The project owner shall transmit a copy of the CBO's inspection approvals to the CPM in the next Monthly Compliance Report following completion of that increment of construction.

ELEC-1 For the 480 volts and higher systems, the project owner shall not begin any increment of electrical 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. [1998 CBC, Section 108.4, Approval Required, and Section 108.3, Inspection Requests.]

Protocol: The following activities shall be reported in the Monthly Compliance Report:

1. Receipt or delay of major electrical equipment;
2. Testing or energization of major electrical equipment; and
3. 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 electrical construction, the project owner shall submit to the CBO for review and approval the final design plans, specifications and calculations for electrical equipment and systems 480 volts and greater, including a copy of the signed and stamped statement from the responsible electrical engineer attesting compliance with the applicable LORS, and send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

ELEC-2 The project owner shall submit to the CBO the required number of copies of items A and B for review and approval and one copy of item C [CBC 1998, Section 106.3.2, Submittal documents.]

A. Final plant design plans to include:
   1. One-line diagrams for the 13.8 kV, 4.16 kV and 480 V systems;
   2. System grounding drawings;
   3. General arrangement or conduit drawings; and
   4. Other plans as required by the CBO.

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;
   7. Lighting energy calculations; and
   8. Other reasonable calculations as customarily required by the CBO.

C. 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.

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 electrical equipment

installation, the project owner shall submit to the CBO for review and approval the final design plans, specifications and calculations, for electrical equipment and systems 480 volts and greater enumerated above, including a copy of the signed and stamped statement from the responsible electrical engineer certifying compliance with the applicable LORS. The project owner shall send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

B. POWER PLANT RELIABILITY

The Warren-Alquist Act directs the Commission to examine the safety and reliability of the proposed power plant, including provisions for emergency operations and shutdowns. [See Pub. Resources Code,／25520(b).] There are no laws, ordinances, regulations, or standards (LORS) that establish either power plant reliability criteria or procedures for attaining reliable operation. Nevertheless, the Commission must determine whether the project will be designed, sited, and operated in such a manner as to assure safe and reliable operation. [Cal. Code of Regs., tit. 20,／1752(c)(2).] To do this, the Commission considers whether the proposed project will degrade the reliability of the utility system to which it is connected. If the project exhibits reliability at least equal to that of other power plants in the system, it will be presumed not likely to degrade the system.

SUMMARY AND DISCUSSION OF THE EVIDENCE

Staff examined the project s design criteria to determine whether it will be built in accordance with typical power industry norms for reliable electricity generation. (Ex. 23, p. 325.) According to Staff, project reliability is achieved by ensuring equipment availability, plant maintainability, fuel and water availability, and adequate resistance to natural hazards. (*Ibid*., p. 326.) This evidence was admitted without objection and is uncontroverted (10/12/99 RT 72.)

1. Equipment Availability

The Sunrise Cogeneration and Power Project will ensure equipment availability by use of appropriate quality assurance/quality control (QA/QC) programs during design, procurement, construction and operation of the plant. This includes inventory review, and equipment inspection and testing on a regular basis. Vendors of plant equipment and materials will be selected from lists of qualified suppliers, those with known capabilities. To appear on the list of qualified suppliers, a vendor must show satisfactory personnel qualifications, production

capability, past performance, and a quality assurance program (*Id*., p. 327; see also Ex. 1,／2.4.5.) Procured items will be subjected to a system of inspections, audits and independent testing contacts that ensures the expected quality. This describes an industry standard approach to vendor selection, which will lead to the acquisition of quality, reliable equipment and materials.

2. Plant Maintainability

According to Applicant, the project design includes adequate redundancy of auxiliary systems to prevent off-line events due to mechanical failure. (Ex. 1,／2.4.2; Table 2-5.) Staff agreed with Applicant that the project would provide sufficient redundancy of function to ensure continued operation in the event of equipment failure. (Ex. 23, pp. 327-328.) The two parallel trains of gas turbine generators/HRSGs, as well as the double circuit 230-kV transmission lines, provide inherent reliability. (Ex. 23, p. 328.) Staff concluded that SCPC s plant maintenance program would be typical of the industry and it would, coupled with the overall plant quality control program, ensure adequate reliability. (Ex. 23, p. 328.)

3. 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.

Staff and the Applicant agreed that there is adequate natural gas (fuel) supply and pipeline capacity to deliver natural gas for project operations. (Ex. 23, p. 328-329.) Applicant and Staff also concurred that an adequately reliable source of water exists. The greatest water consumer of most gas turbine power plants is the cooling tower, which cools the steam condenser of a combined cycle power plant. The Sunrise project, however, will be a simple cycle cogeneration plant.

As such, there are no steam turbines, and thus no steam condensers that require cooling. The greatest water demand of the Sunrise project will be the feedwater for cogeneration steam to be delivered to the Texaco California, Inc. (TCI) oilfield. The project will use produced (recycled) oilfield water from Texaco North American Production (TNAP) to satisfy its feedwater need. (Ex. 1, // 1.6.2, 1.6.6, 2.2.6.2, and 2.4.4; Ex. 23, p. 329.) Use of this wastewater eliminates the need to use other, higher quality water sources. (See **Soil and Water Resources** section of this Decision.) Witnesses for both Applicant and Staff testified that the potable water, firewater, and water for gas turbine evaporative inlet air cooler makeup will be supplied by the West Kern Water District (WKWD) and would be less than one percent of the District s total production. (Ex. 1, / 1.9.14.)

4. Natural Hazards

The project site is located in seismic zone 4 and is designed to comply with all applicable LORS for seismic design in that zone. (Ex. 23, p. 329; Ex. 1, / 2.3.1.) 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 (see section entitled **Facility Design** in this Decision). The site footprint will be built at an elevation above the 100-year flood zone. (See **Soil And Water Resources** and **Geology** sections in this Decision.) Staff concluded that neither earthquakes nor flooding would present significant hazards to the project s safe and reliable operation. (Ex. 23, p. 329.)

5. Availability Factors

Applicant predicts the project will have an annual availability factor of 92 to 98 percent and could exceed 98 percent for a 12-month period. (Ex. 1, / 2.4.1.) Industry statistics for power plant availability factors are compiled by the North American Electric Reliability Council (NERC). (Ex. 23, p. 330.) NERC s statistics show an availability factor of 90.03 percent for simple cycle units 50 MW and

larger. (*Ibid*.) Although the NERC figure is lower than Applicant s proposed availability factor, Staff s witness expects that a modern, baseload facility such as the Sunrise project would likely exceed the NERC average. (*Ibid*.) Staff agreed with Applicant that the proposed 92-98 percent availability factor is consistent with industry norms for power plant reliability. (*Ibid*.)

6. Potential Impacts to System Reliability

In the newly restructured electricity market, the California Independent System Operator (Cal-ISO) is primarily responsible for maintaining system reliability and is presently developing protocols to ensure reliability. (See **Transmission System Engineering** section.) Until the restructured competitive electric power system has undergone a shakeout period, Staff believes that existing industry norms for system reliability should be followed. (Ex. 23, p. 326.) Applicant proposes to operate the project as 320 MW baseload unit, operating at output levels ranging from 60 to 100 percent of baseload at a capacity factor between 92 and 98 percent, with a target annual capacity factor or 95 percent. (*Ibid*.) Further, since the plant will consist of two parallel gas turbine generating trains, maintenance can be scheduled during those times of the year when the full plant output is not required to meet market demand, typical of industry standard maintenance procedures (Ex. 23, p. 330). Since the project is designed to conform to industry norms, Staff concluded that SCPC would perform reliably and cause no impacts to electric system reliability. (Ex. 23, p. 330.)

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

1. The Sunrise Cogeneration and Power Project will ensure equipment availability by implementing quality assurance/quality control programs and by providing adequate redundancy of auxiliary equipment to prevent unplanned off-line events.

2. The Sunrise Cogeneration and Power Project s two parallel trains of gas turbine generators/HRSGs, as well as the double circuit 230-kV transmission lines, provide inherent reliability.
3. Planned outages for each of the turbine generators can be scheduled in sequence during times of low regional electricity demand.
4. There is adequate fuel and water availability for project operations.
5. Neither earthquakes nor flooding present significant hazards to the project s safety or reliability.
6. The project s estimated 92-98 percent availability factor is consistent with industry norms for power plant reliability.
7. The Sunrise Cogeneration and Power Project will perform reliably in baseload duty and cause no significant impacts to electric system reliability.

The Commission, therefore, concludes that the project will not have an adverse effect on system reliability. No Conditions of Certification are required for this topic. To ensure implementation of the QA/QC program described above, appropriate Conditions of Certification are included within the topic of **Facility Design**.

C. POWER PLANT EFFICIENCY

In this section, the Commission assesses whether the project s consumption of non-renewable energy will result in significant adverse environmental impacts and, if so, what feasible mitigation measures are available to eliminate or minimize the impacts through increased efficiency of design and operation.

SUMMARY AND DISCUSSION OF THE EVIDENCE

Under the California Environmental Quality Act (CEQA), a project causes significant environment impacts if it uses large amounts of energy in a wasteful, inefficient, and unnecessary manner. (Cal. Code of Regs., tit. 14, ⁄ 15126.4(a)(1).) In accordance with CEQA Guidelines, Staff s analysis considered whether the project would result in: 1) adverse effects on local and regional energy supplies and energy resources; 2) a requirement for additional energy supply capacity; 3) noncompliance with existing energy standards; or 4) wasteful, inefficient, and unnecessary consumption of fuel or energy. (*Id.*, ⁄ 15000 et seq., Appendix F; Ex. 23, p. 334-335.)

1. Potential Adverse Effects on Energy Supplies and Resources

Power plants that fall within the Commission s siting jurisdiction consume large amounts of energy.[8] (Ex. 23, p. 335.) The Sunrise Cogeneration and Power Project or SCPP will burn natural gas at a maximum rate approaching 74 billion Btu per day. (Ex. 1, Appendix I-8; Ex. 23, p. 335.) While this is a substantial rate of energy consumption, SCPP will purchase gas on the open market, drawing from plentiful supplies in the Southwest and Canada, transmitted via the joint Kern River/Mojave gas pipeline system. (Ex. 23, p. 335.) These sources can supply far more gas than required by SCPP, and it is therefore highly unlikely

[8] See, Public Resources Code section 25500 et seq., which provides that the Commission has jurisdiction to certify projects that generate 50 MW or more.

that the Sunrise project could pose a substantial increase in demand for natural gas in California.[9] (*Ibid*.)

2. Depletion of Energy Supply

The natural gas pipeline system in California is so large and well-established that there is no real likelihood that SCPP will require development of any new sources of energy. (Ex. 23, p. 335.)

3. Alternatives to Wasteful or Inefficient Energy Consumption

Applicant considered alternative generating technologies such as distillate oil, crude oil, produced gas, petroleum coke, solar, and biomass, geothermal and nuclear technologies. (Ex. 1,/5.5.3.) Given the project objectives, location, and air pollution control requirements, Staff agreed with Applicant that only natural gas-burning technologies are feasible. (Ex. 23, p. 337.)

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 to generate power. (Ex. 23, p. 336.) SCPP will employ two General Electric F-class combustion turbine generators with evaporative inlet air coolers, each nominally rated at 171.7 MW, with a peak load efficiency of 36.2 percent lower heating value (LHV) and two single-pressure heat recovery steam generators (HRSGs). (Ex. 1, / 1.6.2; Ex. 23, p. 336.) This LHV figure is equivalent to the average fuel efficiency of a typical utility company baseload power plant at approximately 35 percent LHV. This figure, however, ignores the efficiency benefits of cogeneration. A more meaningful measure is the overall efficiency of energy generation (electric and thermal) by the project; this total cogeneration efficiency will be approximately 85 percent LHV. (Ex. 23, p. 335.)

[9] The Commission takes administrative notice of the natural gas supply and forecast data made available in a public hearing conducted by Commission s Fuels and Transportation Committee on November 22, 1999. The current demand forecast for natural gas for power generation in California is 1.7 billion cubic feet per day (cfd). Over the next 20 years, this demand is expected

The project is configured as a cogeneration power plant. Cogeneration involves the concurrent generation of electricity and useful thermal energy. By making use of waste heat from the electric generation process that would otherwise be lost, a cogeneration power plant is inherently more efficient that the separate power plant and industrial heat source (boiler or heater) that it replaces. (Ex. 23, p. 336.)

The Sunrise project will further be configured as a simple cycle power plant, in which electricity is generated by two gas turbine generators. Such a configuration is appropriate for a cogeneration plant in which thermal (heat) output is a chief consideration. The project could have been designed as a combined cycle power plant, in which steam from the HRSGs powers a steam turbine generator; steam extracted form the steam turbine would them be available for cogeneration use. Such a cycle is inherently more efficient for electricity generation than a simple cycle plant because waste heat in the gas turbine exhaust is utilized to generate more electricity in the steam turbine generator, before being sent to the cogeneration host. Where electric generation is the prime consideration and cogeneration secondary, such a cycle is often desirable. The SCPP however, is intended largely to satisfy a cogeneration need; electric generation is not necessarily the prime consideration. The number of turbines further contributes to efficiency at part load. Gas turbine generators operate most efficiently at one particular output level, typically at full load. Whenever desired output is less than full load, the unit must be throttled back. Rather than being forced to throttle back one large turbine, with the consequent reduction efficiency, the power plant operator will have the option of shutting off one gas turbine. This allows the plant to generate at half load while maintaining optimum efficiency.

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to double. According to Commission staff, the natural gas resource is so large that there is no potential likelihood that demand will exceed availability.

Staff concluded that the proposed project configuration and generating equipment will satisfy the project objectives while minimizing adverse impacts on energy resources. (Ex. 23, p. 338.)

Staff believes that SCPP represents the current state-of-the-art in electric generation efficiency (Ex. 23, p. 336.) The modern F-class gas turbines manufactured by General Electric, compare favorably to other F-class generators currently on the market. (*Ibid*.)

As a cogenerator of both electricity and thermal energy, the Sunrise project will provide 1.8 million pounds per hour of high-pressure steam to Texaco California, Inc. (Ex. 23, p. 333.) By utilizing waste heat from the electric generation process that would otherwise be lost, a cogeneration plant is inherently more efficient than the separate power plant and industrial heat source (boiler or heater) that it replaces. (*Id*., p. 337.)

4. Compliance with Energy Standards

The efficiency standards applicable to the SCPP involve its compliance with the definition of a cogeneration facility. (Ex. 23, p. 335.) SCPC has projected the facility to operate 95 percent of the time. (Ex. 1, // 1.7, 2.2.16.) The plant is to generate up to 320 MW of electricity while supplying up to 1.8 million pounds per hour of steam at 1,250 psig[10] and 574¡F to TCI for use in thermally enhanced oil recovery (Ex. 1, / 2.2.3.2; Appendix I-8.) Based on these assumptions, SCPC has calculated that the plant will achieve an operating standard of 58.7 percent and an efficiency standard of 60.5 percent. (Ex. 1, Appendix I-8.) Staff concurs that these figures are reasonable and achievable (see Ex. 23, p. 338.) These figures meet and exceed California s definition of a cogeneration facility. As a cogeneration facility, SCPC is exempt from the requirement to file a Notice of Intention (NOI). [Public Resources Code, / 25540.6(a)(1).] The Condition of

[10] Pounds per square inch gage.

Certification (**EFF-1**, below) will ensure that these standards are achieved in actual operation.

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

1. The Sunrise Cogeneration and Power Project will not create a significant demand for natural gas in California.

2. The Sunrise Cogeneration and Power Project will not require the development of any new sources of energy.

3. Given project objectives, location, and air pollution control requirements, only natural gas-burning technologies are feasible for this project.

4. The project will employ modern F-class gas turbines (General Electric PG7241 (FA)) nominally rated at 36.2 percent lower heating value (LHV) efficiency, which compares favorably to other available F-class turbine generators.

5. As a cogenerator providing process steam to Texaco California, Inc., the Sunrise Cogeneration and Power Project is inherently more efficient than the separate power plant and industrial heat source that it replaces.

6. As a highly efficient, state-of-the-art natural gas-fired power plant, SCPP is significantly more efficient than older power plants in the utility system.

The Commission, therefore, concludes that SCPP will not cause any significant adverse impacts to energy supplies or energy resources. With the Condition of Certification (**EFF-1**, below), the project will conform with all applicable laws, ordinances, regulations, and standards relating to power plant efficiency as identified in the pertinent portions of APPENDIX A of this Decision.

CONDITION OF CERIFICATION

EFF-1 The facility shall be operated to meet the standards contained in Public Resources Code section 25134.

The project owner shall maintain monthly records of: 1) fuel consumption (including startup and shutdown); 2) net electrical energy produced; and 3) net thermal energy derived from cogeneration steam.

Based upon these records, the project owner shall annually prepare calculations of the operating standard and efficiency standard achieved by the plant, showing how the plant meets the minimum required standards.

Verification: The project owner shall maintain an on-site compliance file that contains the above records and the above calculations showing compliance with the required standards, and make it available for audit by the Compliance Project Manager (CPM) at any reasonable time. The project owner shall also submit the above calculations of the operating standard and efficiency standard to the CPM in each Annual Compliance Report following the first instance of power generation from the plant.

D. TRANSMISSION SYSTEM ENGINEERING

In addition to the cogeneration and power plant portion of the Sunrise facility, Applicant will also construct and operate an electric transmission tie line as a linear facility related to the power plant. (See Pub. Resources Code, ⁄⁄ 25120, 25110.) The Commission s jurisdiction to address this matter includes any electric power line carrying electric power from a thermal power plant to a point of junction with any interconnected transmission system. (Pub. Resources Code, ⁄ 25107.) Neither of the two favored generation tie-line alternatives between the Sunrise project and the Midway substation are part of the electric grid controlled by the California Independent System Operator (Cal ISO). (Ex. 36.) Thus, the Commission s analysis of the factors involving Transmission System Engineering include determining whether or not the project s transmission intertie facilities are likely to conform with all applicable laws, ordinances, regulations, and standards intended to ensure safe and reliable electric power transmission and, if not, to determine appropriate mitigation measures. This examination by Commission staff was coordinated with the evaluation performed by the Cal-ISO in order to determine the project s effects on the interconnected electrical grid.

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Description of Transmission Facilities.

The project will generate 338 MW and will access the California electricity market through PG&E s Midway substation near Buttonwillow. Applicant is seeking certification for two of the seven alternative transmission line routes. The first, known as Route B, is a direct connection from the Sunrise Cogeneration and Power Project to the Midway Substation. This alternative is approximately 23.3 miles long and will require 170 poles. The connection at Midway will require the addition of one 230 kV line termination to accommodate the Sunrise project line.

Applicant expects that the termination will lie within the fence at the Midway substation. (Ex. 32, pp. 64-65; 11/5/99 RT 89.)

The second alternative is known as Route F, which connects from Sunrise to the certified, but not yet constructed, La Paloma substation and then by a joint ownership line to the Midway substation. It includes a 10.5-mile line from Sunrise to the La Paloma substation. From the La Paloma substation to the Midway substation the route is approximately 14.2 miles long and will run parallel to existing transmission lines wherever possible. The line parallels PG&E s Midway Sunset 230 kV line, then parallels the PG&E 500 kV Diablo-Midway line until it reaches the Midway substation. The proposed transmission line for the La Paloma project can carry 2116 MW at its normal rating. This is enough capacity for the La Paloma project and all three potential phases of the Sunrise project.[11] The overall length of this connection from Sunrise to the Midway substation is 24.2 miles. (Ex. 32, p. 61; 11/5/99 RT 90.)

The transmission line itself will be a 230 kV double circuit line with the circuits initially connected so that they function as a single circuit. This configuration will allow Applicant to increase the capacity of the line to accommodate potential project expansion. The total line capacity is expected to be 952 MW. Both alternative proposed line routes will use single shaft galvanized tubular steel poles up to the point of interconnection with either the Midway substation or the La Paloma substation. (Ex. 32, p. 62.)

2. System Reliability

The interconnection of a new generator if not properly designed and operated, could adversely impact the reliable operation of the state s electric power system.

[11] Sunrise Cogeneration and Power Project is proposed for 338 MW. However, Sunrise has studied the affects of expanding the project to 507 MW (phase II) in subsequent years and later to 845 MW (phase III), but has no current intention of proceeding with phases II and III. (Ex. 32, p. 61; 11/5/00 RT 65.)

The primary roles of the Cal-ISO regarding the interconnection of new generation are to ensure and to coordinate the reliable operation of the portion of the electric grid, which it controls. To do this the Cal-ISO coordinates the planning of system modifications to ensure they meet the Cal-ISO s Grid Planning Criteria. (Ex. 36, p. 1.) These criteria essentially incorporate all Western Systems Coordinating Council (WSCC) reliability Criteria, the North American Electric Reliability Council (NERC) Planning Standards, and local area reliability criteria. (*Id*.)

The Cal-ISO s criteria apply to all existing and proposed facilities interconnecting with the controlled grid. Commission staff relies on the Cal-ISO s determinations in formulating recommendations to the Commission concerning the proposed facility s conformance with applicable standards. Staff also looks to the Cal-ISO s findings to determine the need for any additional transmission facilities caused by the project, as well as the need for any environmental review related to such facilities.

Generation developers submit their requests for interconnection to the Cal-ISO Controlled Grid to the Participating Transmission Owner (PTO); in the case of the Sunrise project the PTO is PG&E. The PTO conducts technical studies to determine the need for transmission facilities that are required to reliably connect the project to the Cal-ISO Controlled Grid. In addition to reliability, the PTO conducts analyses to determine if any congestion impacts will be caused by the addition of the new generator to the grid.

The PTO measures the performance of the transmission system against three planning criteria: the Cal-ISO Grid Planning Criteria, the WSCC Reliability Criteria, and NERC Planning Standards. (Ex. 36, p. 1.)

At the request of Applicant, PG&E performed two Interim Detailed Facilities Studies (DFS). The Interim DFS-1 report is associated with transmission alternative F . (Ex. 19.) The Route B alternative is addressed in Interim DFS

report-2. (Ex. 20.) The Power Flow studies in both reports indicate that the Sunrise project will have no adverse impacts on the area transmission facilities during typical NERC contingencies. Some overloads are predicted during extreme contingencies and during certain seasonal periods if an outage of one of the Midway 500/230 kV transformer banks occurs. However, these conditions will be mitigated by Sunrise s participation in a Remedial Action Scheme (RAS).[12] The two DFS reports do not indicate a significance difference to existing conditions with or without the Sunrise project. Both studies conclude that there will be no downstream impacts to the system beyond the Midway substation. (11/5/99 RT 90-91.)

3. Alternatives

Applicant looked at seven different alternative transmission line configurations and is seeking certification for two of them, Routes B and F. The evidence of record examines the other five alternative routings and termination alternatives. In each instance, however, substantial deviation from the two preferred routings and terminations at either the Midway or La Paloma substations would either have greater environmental impacts, add substantial expense, or pose greater uncertainties than the two preferred routings. (Ex. 32, pp. 67-68.)

4. Closure

Before generating facilities are permitted to provide power to the California Power Exchange, generator standards must be met and power plant operators must commit to comply with instructions of the Cal-ISO dispatchers. Participating generators must sign a Participating Generator Agreement. The evidence indicates that procedures for planned, unexpected temporary and unexpected

[12] A remedial action scheme is an automatic control provision which can, for example, decrease or trip the Sunrise Cogeneration and Power Project s output to mitigate a circuit overload in order to maintain system reliability. (Ex. 36, p. 13.)

permanent closure are developed as part of this process to establish coordination between the generator, the PTO, and the Cal-ISO. Furthermore, rules issued by the California Public Utilities Commission also govern project closure. In addition, the Compliance Plan incorporated as part of this Decision contains additional provisions ensuring that project closure will comply with applicable laws, ordinances, regulations, and standards, and that system safety and reliability will not be jeopardized. (Ex. 32, pp. 69-70.)

5. Cumulative Impacts

Cumulative impacts are two or more individual impacts on the environment that, when considered together, are considerable or that compound or increase other environmental impacts. The impacts may be changes which result from the proposed project or from a number of separate projects. The Commission examines the incremental impact of the proposed project when added to other closely related past, present, and reasonably foreseeable probable future projects. (Cal. Code of Regs., tit. 14,／15355; see also Cal. Code of Regs., tit. 14, ／15126.)

The sole issue that was contested in the area of Transmission System Engineering involves the challenge of the Transmission Agency of Northern California (TANC) to the adequacy of the cumulative impacts analysis.[13] TANC is a joint powers agency and public entity organized pursuant to a Joint Powers Agreement. Its members are the cities of Alameda, Biggs, Gridley, Healdsburg, Lodi, Lompoc, Palo Alto, Redding, Roseville, Santa Clara, and Ukiah, as well as the Modesto Irrigation District, the Sacramento Municipal Utility District, and the Turlock Irrigation District. Plumas-Sierra Rural Electric Cooperative is an associate member of TANC. TANC provides electrical transmission facilities and

[13] TANC petitioned to intervene in the Sunrise case on August 31, 1999. Applicant filed opposition to TANC s petition on September 15, 1999, and the Committee granted the petition to intervene on October 1, 1999.

services to its members. TANC imports power through TANC s facilities and contracts from north of the California-Oregon border and south of the Midway Substation.

TANC s witness acknowledged that he had no disagreement with the DFS studies carried out by PG&E or with the testimony filed by ISO witness Ron Daschmans. (Exs. 19, 20, 36; 11/5/99 RT 120.) These documents concluded that the Sunrise project would not have a significant impact on the transmission system. Nevertheless, the TANC witness argued that when the transmission system at Midway is fully loaded, the addition of the generation from the Sunrise Cogeneration and Power Project to the transmission grid would result in congestion at Midway and in a one-for-one reduction in power imports from southern California into northern California. TANC is concerned that such an event would impact its members rights to use the transmission system. (11/5/99 RT 120.)

The TANC witness concluded that therefore, it would be prudent to conduct further studies of the cumulative transmission impacts of new power generators such as Sunrise. TANC is concerned that the accumulation of new generators at the Midway substation will lead to congestion management problems which will harm the ability of its members to import power from southern California to northern California. The witness also noted that the Sunrise connection could impact the ability of TANC members to undertake southbound transactions on the California Oregon Intertie (COI) or on Path 15.[14] (Ex. 39; 11/5/99 RT 119-120.)

TANC urges the Commission to conduct further studies to examine the impact of the Sunrise project on transmission congestion and to examine the potential

[14] Path 15 is term used to describe the Los Banos — Gates — Midway and Los Banos — Midway 500 kV transmission lines. This collection of transmission lines can be subject to congestion when fully loaded.

environmental impacts of the steps the ISO may take to resolve the congestion, such as remedial action schemes. Yet TANC witness David Larson stated that he did not recommend a delay in the Sunrise case in order to carry out such studies. (11/5/99 RT 126.)

Applicant argues that the additional studies TANC requests and the issues TANC is asking the Commission to resolve are beyond the Commission s legal siting jurisdiction. Sunrise cites Public Resources Code section 25107 which defines an electric transmission line for purposes of the Commission s siting authority as any electric power line carrying electric power from a thermal power plant within the state to a point of junction with any interconnected transmission system. Applicant notes that this language has been defined in regulations and interpreted by the courts to mean the first point of interconnection.[15] The first point of interconnection for the Sunrise project is the point at which the power plant s transmission line interconnects with the Midway substation. Applicant states that TANC is asking the Commission to remedy impacts that occur, if at all, beyond the first point of interconnection and beyond the Commission s siting jurisdiction.

Applicant further argues that the Commission s obligation to examine safety and reliability issues concerning a proposed power plant is, in the case of the plant s transmission line, limited to the first point of interconnection with the transmission system. Sunrise adds that Commission regulations require Staff analysis to focus on those safety and reliability matters not expected to be considered by other agencies. [16] Applicant states that in this case, the other agency is the Cal-ISO which, since the passage of AB 1890, has authority for ensuring efficient use and reliable operation of the state s transmission grid.[17]

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[15] 20 CCR,/1702(n); See also *Public Utilities Commission v. Energy Resources Conservation and Development Commission*, (1984) 150 Cal. App.3d 437.

[16] 20 CCR,/1743(b).

[17] Public Utilities Code,/345.

For its part the Commission staff notes that aside from the review by the Cal-ISO, no analysis of cumulative system impacts has been performed to account for all the projects which may tie into the Midway substation. However, Staff cites the same statutory authority as does Applicant and points out that the Commission s failure to carry out such a cumulative analysis is, in fact, in accordance with the statutes that govern both the Energy Commission and the Cal-ISO.

COMMISSION DISCUSSION

The Commission is aware of a number of power plant projects, which have either been proposed for connection to the Midway substation or which could impact the substation. These include the licensed La Paloma project as well as the Sunrise, Elk Hills, Midway Sunset, Pastoria, and Morro Bay projects.

We note that in the case where transmission line engineering plans of other proposed projects are more specific than speculative, the Commission staff did analyze the cumulative effects of combined projects on the environment. In every case, Staff found that the Sunrise project either did not contribute to cumulative impacts or, if such potential existed, the proposed mitigation measures would assure that the impacts were reduced to below the level of significance.[18] However, beyond the first point of interconnection, the evidentiary record in this case lacks specific information regarding how power from the plants in west Kern County will affect the integrated transmission system.[19]

[18] For example, cumulative impacts to biological resources will be mitigated through take avoidance measures and habitat compensation purchases. (Ex. 63, pp. 16-17.) Applying the Conditions of Certification can mitigate significant cumulative impacts to cultural resources. (Ex. 23, p. 209; also see evaluation of transmission line cumulative impacts in Ex. 23 at pp. 198, 205, and 208-209.) No cumulative impacts to visual resources are expected from transmission lines due the existing degraded visual landscape in oil fields. (Ex. 23, p. 141.) Under land use, since the Kern County Zoning Ordinance permits transmission lines in the area by right, staff found no cumulative significant impacts from project lines. (Ex. 23, p. 68-69.)

[19] Furthermore, with the passage of AB 1890, the legislature made clear that the Cal-ISO, and not the Energy Commission, has jurisdiction to analyze system impacts of adding new generation to the controlled grid. (Public Resources Code section 345.)

The record before us demonstrates that Staff and the Cal-ISO have provided an adequate analysis of the cumulative environmental and transmission system impacts related to the Sunrise project. However, in the future, in order to expand the information available to decision makers and the public regarding how a project s transmission system engineering may contribute to cumulative impacts on the environment,[20] the Sunrise Committee is recommending that, the Commission direct Staff to expand its scope of analysis in this area. Rather than focus on the environmental impacts resulting from system upgrades identified by the ISO,[21] the Committee believes the Commission should require Staff to look forward to all projects which are reasonably foreseeable, probable future projects . [Cal. Code of Regs., tit. 14,／15355(b).] In this way Staff could better determine whether the proposed project is likely to contribute to cumulative transmission impacts which will cause a physical change in the environment and, if so, whether the project s incremental contribution to such impacts is considerable. The discussion of cumulative impacts should reflect their severity and likelihood of occurring, but need not be as detailed as the discussion of the project s direct impacts.

In the case of the Sunrise project, the testimonies of Applicant and the Cal-ISO address the La Paloma and Sunrise transmission connections to the Midway substation.[22] (Ex. 19, 20; Ex. 36; 11/5/99 RT 46-47.) Staff testimony included a cumulative analysis of combining the La Paloma, Sunrise and Midway Sunset projects. A brief discussion of impacts from the Elk Hills project was also included. (Ex. 32, pp. 68-69.) To further inform the record, the Committee hereby

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[20] This is as opposed to an evaluation of impacts to the integrated transmission system beyond the point at which a power plant ties in to the system. Such non-environmental transmission system impacts are analyzed by the Cal-ISO.

[21] The Cal-ISO typically identifies transmission system impacts from the proposed project in conjunction with impacts from other relevant projects that have previously been licensed by the Commission.

[22] The testimony revealed that no substantial upgrades were required either to the Midway substation or to the downstream-integrated system. (Ex. 36.)

takes administrative notice of the transmission cumulative impacts analysis in the Elk Hills case. (Docket No. 99-AFC-1: Ex. 19, p. 340; 1/25/00 RT 30:7-12, 35:14-19, 36:3-8.) That record makes it clear that any physical up-grades to the transmission system which are necessitated by these projects will be minor and have *de minimus* cumulative impacts.[23]

Yet, even if the record contained further information concerning downstream cumulative impacts to the transmission system, the *environmental effects* of transmission impacts such as the congestion alleged by TANC, cannot be known to us without engaging in extensive speculation. Even TANC s own witness could not be sure which of its power plants it would operate in the event of transmission congestion. Furthermore, regardless of transmission concerns, many of its member s plants are subject to air quality operating limitations which they cannot exceed. (1/10/00 RT pp. 234, 235, 245.) Thus, it is impossible to know which power plants are most likely to operate and what environmental impacts will result. CEQA does not require the Commission to carry out its environmental analysis as a lead agency by engaging in such speculation. (Cal. Code of Regs., tit. 14,/15145.)

In addition, for the Sunrise project to be found to have significant cumulative impacts, it must be found that its contribution to an environmental impact is cumulatively considerable . [Cal. Code Regs., tit. 14,/15064(i)(1) and (2).] However, the record before us demonstrates that the project will not contribute to cumulatively considerable impacts related to transmission system engineering. We find, therefore, that having reviewed the Sunrise project in conjunction with other probable future projects in the area, it will not contribute to cumulative impacts which are significant.

[23] Of three interconnection variations for Elk Hills, the largest impact is on the Route 1B variation which would require that additional 115 to 70 kilovolt transmission capacity be provided for the Taft substation. (1/25/00 RT 36:3-8.)

The Cal-ISO carried out its duty in this case through the sworn expert testimony of Ron Daschmans, a Grid Planning Engineer at the Cal-ISO. (Ex. 36.) In doing his analysis Mr. Daschmans relied on the two PG&E Interim Design Facilities Studies. (Ex. 19 and 20.) These studies indicated that their stability assessment showed no difference with or without the Sunrise project and further showed no downstream impacts on the system beyond the Midway substation.[24] Even the witness for TANC stated that we certainly don t have any disagreement with the results of the analysis. (11/5/99 RT 120:5-6.) Mr. Daschmans and the Cal-ISO concurred with the PG&E analysis and determined that the Sunrise project can be operated at the specified levels within applicable system reliability criteria for the contingencies analyzed. To mitigate any further potential impacts, Condition of Certification **TSE-1**, proposed by the Commission staff, ensures that the Sunrise project will file a Final Detailed Facilities Study, including a description of remedial action scheme (RAS) sequencing, before constructing its transmission facilities. (Ex. 32, p. 71.)

Based on the evidence of record, we conclude that the Commission lacks the legal authority to regulate a project s cumulative system impacts to the transmission system beyond the project s first point of interconnection with the integrated system. The Cal-ISO has such authority and, based on its analysis of the La Paloma and Sunrise projects, it has determined that the Sunrise project will not have a significant negative impact on the system. However, as the lead agency examining this project under CEQA, the Commission will continue to analyze the cumulative environmental impacts related to transmission system upgrades resulting in whole or in part from Commission projects.

[24] In spite of TANC s request that the Commission carry out additional studies, TANC s own witness seemed comfortable with the existing system for analyzing transmission interconnection. I think the studies that we envision and prepared in testimony will all be done as part of the ongoing studies that PG&E is doing at the present time. (11/5/99 RT 126:15-16.)

FINDINGS AND CONCLUSIONS

1. The California Independent System Operator is the legally designated agency to analyze downsteam non-environmental transmission system impacts beyond the first point of a project s interconnection with the integrated system.

2. The California Independent System Operator has determined that interconnecting the Sunrise Cogeneration and Power Project at the Midway substation will not create adverse impacts to the reliability of the electrical system.

3. The California Independent System Operator has determined that interconnecting the Sunrise Cogeneration and Power Project will not require the construction of additional transmission facilities downstream of the Midway substation.

4. The Sunrise Cogeneration and Power Project will operate according to remedial action schemes specified by the California Independent System Operator.

5. The California Independent System Operator s determinations are based on its review of the preliminary interconnection and facilities study.

6. A final Detailed Facilities Study is forthcoming and the testimony of record establishes that this document is not expected to alter conclusions reached concerning the acceptability of interconnecting the Sunrise Cogeneration and Power Project at the Midway substation.

7. The outlet line from the project to the first point of interconnection is designed to transport a total line capacity of approximately 952 MW.

8. Possible cumulative transmission system impacts will be addressed by the Cal-ISO in future proceedings, as more information about future projects becomes available.

9. The Commission is responsible as lead agency under the California Environmental Quality Act, to analyze the environmental effects of changes to the transmission system which are related to the addition of new power plants licensed by the Commission.

10. Both alternative transmission routes B and F are deemed acceptable and one may be constructed.

11. This Decision does not address economic cost allocations of transmission mitigation among project developers.

12. With the implementation of the various mitigation measures specified in this Decision, neither proposed transmission interconnection alternative of the Sunrise project will contribute to significant direct, indirect, or cumulative environmental impacts.

13. The Conditions of Certification below ensure that the transmission related aspects of the La Paloma Generating Project will be designed, constructed, and operated in conformance with the applicable laws, ordinances, regulations, and standards identified in the appropriate portion of Appendix A of this Decision.

We therefore conclude that interconnection of the project at the Midway substation is acceptable, and that it will not result in the violation of any criteria pertinent to transmission engineering.

CONDITIONS OF CERTIFICATION

TSE-1: The project owner shall ensure that the design, construction and operation of the proposed transmission facilities will conform to requirements listed below. The substitution of Compliance Project Manager (CPM) approved equivalent equipment and equivalent substation configurations is acceptable.

a. The Sunrise project 230 kV substation shall include busses in a ring configuration or a breaker and a half scheme.

b. Breakers and bus in the power plant substation and other substations where applicable shall be sized to comply with a short circuit analysis.

c. The power plant switchyard, outlet line and termination shall meet or exceed the requirements CPUC General Order 95.

d. One of the two line alternatives shall be constructed.

e. Termination facilities at the Midway substation shall comply with applicable Cal-ISO and PG&E interconnection standards (PG&E Interconnection Handbook and CPUC Rule 21).

f. 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.

g. The transmission facilities will use steel pole construction and conductors which could be as small as 1113 KCM Marigold aluminum alloy conductor and as large as 1590 KCM Falcon ASCR.

h. The applicant shall provide a Detailed Facilities Study including a description of RAS sequencing and timing and an executed Facility Interconnection Agreement for the Sunrise project transmission interconnection with PG&E. The Detailed Facilities Study and Interconnection Agreement shall be coordinated with the Cal-ISO.

Verification: At least 60 days prior to start of construction of transmission facilities, the project owner shall submit for approval to the CPM, 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 1a through 1h above. The Detailed Facilities Study and executed interconnection agreement shall concurrently be provided. Substitution of equipment and substation configurations shall be identified and justified by the project owner for CPM approval.

TSE-2: The project owner shall inform the CPM of any impending changes, which may not conform to the requirements 1a through 1h of TSE-1, and have not received CPM approval, and request approval to implement such changes. 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 CPM.

Verification: At least 60 days prior to construction of transmission facilities, the project owner shall inform the CPM of any impending changes which may not conform to requirements of TSE-1 and request approval to implement such changes.

TSE-3: The project owner shall be responsible for the inspection of the transmission facilities during and after project construction, and any subsequent CPM approved changes thereto, to ensure conformance with CPUC GO-95 and CPUC Rule No. 21 and these conditions. In case of non-conformance, the project owner shall inform the CPM in writing, within 10 days, of discovering such non-conformance and describe the corrective actions to be taken.

Verification: Within 60 days after synchronization of the project, the project owner shall transmit to the CPM an engineering description(s), and one-line drawings of the as-built facilities, signed and sealed by the registered electrical engineer in charge. A statement attesting to conformance with CPUC GO-95, CPUC Rule No. 21, the PG&E Interconnection Handbook, and these conditions shall be concurrently provided.

E. TRANSMISSION LINE SAFETY AND NUISANCE

The project transmission line must be constructed and operated in a manner that protects environmental quality, assures public health and safety, and complies with applicable laws, ordinances, regulations and standards (LORS). This analysis reviews the potential impacts of the project transmission line on aviation safety, radio-frequency interference, audible noise, fire hazards, nuisance shocks, hazardous shocks, and electric and magnetic field exposure. (Ex. 23, p. 41.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

Since the transmission line will be connected to PG&E s existing transmission system, it must be designed according to PG&E s field-reducing design guidelines related to safety, efficiency, reliability, and maintainability. (Ex. 23, p. 45.)

1. Description of Transmission Line

The project s overhead transmission line is located in an area with existing 500 kV, 230 kV, 115 kV, and 69 kV lines and related facilities owned by PG&E. (Ex. 23, p. 44.) The line will traverse agricultural and industrial areas, open spaces, and oil and gas fields. (Ex. 23, p. 45.) The right-of-way will be about 100 feet wide, but may be reduced to a minimum of 75 feet in some areas, depending on land use or other constraints. (Ex. 23, p. 45.) The overhead line will be erected on steel tubular poles, approximately 1,000 feet apart, that will keep the transmission line at least 30 feet from the ground in keeping with the requirements of the PUC. (Ex. 23, pp. 45-46.)

- The transmission line route is described further in the **Transmission System Engineering** section of this Decision. (See, **TSE** Figure 1.)

2. Potential Impacts

a. Electric and Magnetic Field Exposure

The possibility of health effects from exposure to electric and magnetic fields (EMF) has increased public fears about living near high-voltage lines. (Ex. 23, p. 47.) The available data evaluated by the California Public Utilities Commission (CPUC) and other regulatory agencies does not definitively establish that EMF poses a significant health risk nor prove the absence of health hazards[25] (*Ibid*.) In light of the present uncertainty regarding EMF exposure, Staff testified that most of the regulatory agencies, including the CPUC, have implemented policies to ensure that transmission lines are designed to minimize EMF without impacting transmission efficiency. (Ex. 23, p. 48.) Under CPUC policy, the regulated utilities have established EMF-reducing design criteria for new and upgraded electrical facilities. New transmission lines are not permitted to create EMF levels greater than that of existing transmission lines. (Ex. 23, p. 48.) Staff proposed a Condition of Certification **TLSN-3** to ensure implementation of the reduction measures necessary. Condition **TLSN-3** requires Applicant to measure the strengths of the electric and magnetic fields along the transmission line route before and after energization. Applicant concluded and Staff agreed that the estimated electric and magnetic forces associated with the transmission line are significantly below levels typically used as standards in states that regulate EMF exposure. (Ex. 23, p. 50.) Staff, therefore, recommended approval of the transmission line route as proposed by Applicant. (*Id.*, p. 61-52.)

b. Aviation Safety

As noted by both Applicant and staff, the only major aviation center in the project vicinity is Meadows Field Airport in Bakersfield, approximately 23 miles away.

[25] Although several states regulate EMF levels for new transmission lines, California has not specified a maximum EMF limit. (Ex. 1, p. 6-37-38.)

Two smaller local airports, the Taft-Kern County Airport, and the Elk Hills Buttonwillow Airport are between 2 and 4 miles from the proposed route. A Federal Aviation Administration (FAA) Notice of Construction or alteration will not be required for the proposed power line, according to existing regulatory criteria. Staff agreed with Applicant that the proposed line would not pose a significant hazard to area aviation. (Ex. 23, p. 49, Ex. 1, p. 6-29.)

c. Interference With Radio-Frequency Communication

Interference with radio and television reception can be caused by spark gap discharges around the line that produce noise and interference. Such interference can generally be avoided by appropriate line maintenance. (Ex. 23, p. 49.) Staff noted that Applicant will implement a maintenance program to minimize these occurrences. (*Id.*) Applicant will also employ a corona-reducing design that should prevent radio interference. (Ex. 1, p. 6-31.) Federal Communication Commission (FCC) regulations require transmission line operators to resolve incidents of radio or television interference on a case-by-case basis. Condition **TLSN-2** ensures that SCPP will mitigate any interference-related complaints on a case-specific basis, as required by the FCC.

General Order 52 of the Public Utilities Commission (GO-52) governs the construction and operation of power lines and deals with measures to prevent or mitigate inductive interference. Condition **TLSN-1** will require compliance with GO-52, also intended to prevent radio interference.

d. Audible Noise

Energized electric transmission lines can generate audible noise in a process called corona discharge, most often perceived as a low hissing and crackling sound. (Ex. 1,／6.2.3.) Transmission line noise during fair weather will likely be inaudible. Noise levels may become noticeable during wet weather, but is

generally not expected from lines under 345 kV, such as the one proposed for this project. (Ex. 23, p. 43.) Applicant, therefore, does not expect noise from its transmission line to add significantly to existing ambient noise levels. Staff agrees with Applicant s assessment. (Ex. 23, p. 43; see also the **Noise** section in this Decision.)

e. Fire Hazards

Operation of the transmission line represents a low fire risk. Fires could occur by sparks from overhead conductors coming into contact with nearby trees or other flammable objects. The transmission line will be routed through primarily agricultural areas of low fuel content, where adequate fire prevention and suppression measures will be implemented. (Ex. 23, p. 50.) Applicant will comply with CPUC General Order (GO) 95 that requires tree trimming and maintaining the clearance necessary to prevent fires caused by contact with combustible materials. (Ex. 1, ⁄ 6.2.6.) Condition **TLSN-4** ensures that the transmission line right-of-way will be kept free of combustible material.

f. Nuisance and Hazardous Shocks

Nuisance or hazardous shocks can result from direct or indirect contact with an energized line or metal objects located near the line. If a large insulated metallic object remains under a 230 kV for an extended period of time (e.g., parked farm tractor, large tractor-trailer, or other ungrounded platform) an electric charge may build up on the object due to the electric field produced by the line. If a person touches the charged object, a nuisance shock will be felt due to the short circuit current flowing from the object to the ground through the person. This shock will be similar to the shock experienced when waling across a carpet and touching a doorknob. (Ex. 1, ⁄ 6.2.5.) Applicant will employ mitigation measures for hazardous and nuisance shocks that include grounding of metal objects within the right-of-way. (Ex. 23, p. 46.) The Sunrise project has stated its intention to

comply with the requirements of GO-95, NESC, and Title 8, CCR,／2700 et seq. to prevent hazardous shocks resulting from direct or indirect human contact with the overhead energized line. Both Applicant and staff do not expect any hazard to humans. (Ex. 23, p. 50.) Condition **TLSN-1** ensures compliance with applicable LORS that require implementation of the mitigation measures proposed by Applicant. In addition, under Condition **TLSN-5**, Applicant is obligated to send letters to property owners within or adjacent to the right-of-way explaining its responsibility for grounding chargeable objects within the right-of-way.

COMMISSION DISCUSSION

The evidentiary record establishes that Applicant s transmission line design will conform with all established requirements to ensure aviation safety, prevent radio and television interference, limit audible noise, eliminate fire hazards, and prevent hazardous and nuisance shocks. Since adverse health effects from electric and magnetic fields (EMF) have not been established or ruled out, the public health significance of project-related field exposure cannot be characterized with certainty. The estimated exposures from the project transmission line are significantly below field levels associated with lines of the same voltage, current-carrying capacity, and field levels established by states with regulatory limits for such fields. There is no evidence that the line will pose a danger from EMF exposure.

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

1. The project transmission line, which will connect to PG&E s transmission system, is an overhead double circuit 230 kV line that traverses agricultural and open space areas on steel poles.

2. The possibility of health effects from exposure to electric and magnetic fields (EMF) has increased public fears about living near high-voltage lines.

3. Neither the California Public Utilities Commission nor any other regulatory agency in California has established limits on public exposure to electric and magnetic fields from power lines.

4. SCPP s transmission line will be designed in accordance with the electric and magnetic field reducing guidelines applicable to PG&E s transmission service area.

5. The estimated EMF exposures from the transmission line are below field levels associated with similar lines in the PG&E area, and significantly below field levels established by states with regulatory limits for such fields.

6. The Conditions of Certification reasonably ensure that the transmission line will not have significant adverse environmental impacts on public health and safety nor cause impacts in the areas of aviation safety, radio/TV communication interference, audible noise, fire hazards, nuisance or hazardous shocks, or electric and magnetic field exposure.

The Commission, therefore, concludes that with implementation of the Conditions of Certification, the project will conform with all applicable laws, ordinances, regulations, and standards relating to transmission line safety and nuisance as identified in the pertinent portions of APPENDIX A of this Decision.

CONDITIONS OF CERTIFICATION

TLSN-1 The project owner shall construct the proposed transmission line according to the requirements of GO-95, GO-52 and Title 8, Section 2700 et seq. of the California Code of Regulations.

Verification: Thirty days before start of transmission line construction, or a shorter time period as mutually agreed to by the project owner and the Project Compliance Manager (CPM), the project owner shall submit to the Commission s CPM a letter signed by a California registered engineer affirming that the transmission line will be constructed according the requirements of GO-95, and Title 8, Section 2700 et seq. of the California Code of Regulations.

TLSN-2 The project owner shall make every reasonable effort to identify and correct, on a case-specific basis, all complaints of interference with radio or television signals from operation of the line and related facilities. In addition to any transmission repairs, the relevant corrective actions should include, but shall not be limited to, adjusting or modifying receivers, repairing, replacing or adding antennas, signal amplifiers, filters, or lead-in cables.

The project owner shall maintain written records for a period of five years, of all complaints of radio or television interference attributable to operation together with the corrective action taken in response to each complaint. All complaints shall be recorded to include notations on the corrective action taken. Complaints not leading to a specific action, or for which there was no resolution should be noted and explained. The record shall be signed by the project owner and also the complainant, if possible, to indicate concurrence with the corrective action or agreement, with the justification for a lack of action.

Verification: All reports of line-related complaints shall be summarized and included in the Annual Compliance Report to the CPM.

TLSN-3 The project owner shall engage a qualified consultant to measure the strengths of the line electric and magnetic fields before and after the line is energized. Measurements should be made at appropriate points along the route to allow verification of design assumptions relative to field strengths. Measurements shall be completed 6 months after the line is energized. The areas to be measured should include the facility switchyard and any residences within 100 feet of the right-of-way.

Verification: The project owner shall file copies of the pre-and post-energization measurements with the CPM within 60 days after measurements are completed.

TLSN-4 The project owner shall ensure that combustible material in close proximity to the energized conductors (e.g., tree branches) is cleared from the right-of-way as required under the provisions of GO 95 and Title 14, Section 1250 of the California Code of Regulations.

Verification: The project owner shall provide a summary of inspection results and any fire prevention activities carried out along the right-of-way, in a report to be filed at completion of construction and yearly after that, for a period of five years.

TLSN-5 The project owner shall send a letter to all owners of property within 100 feet or adjacent to the right-of-way at least 60 days prior to first transmission of electricity.

Protocol: The letter shall consist of the following:

- A discussion of the nature and operation of a transmission line.
- A discussion of the project owner s responsibility for grounding existing fences, gates and other large permanent chargeable objects identified during transmission line construction within the right-of-way regardless of ownership.
- A discussion of the property owner s responsibility for grounding and to notify the project whenever the property owner adds or installs a metallic object.
- A statement recommending against fueling motor vehicles or other mechanical equipment underneath the line.

Verification: The project owner shall submit the proposed letter to the CPM for review and approval 30 days prior to mailing to the property owners and shall maintain a record of correspondence (notification and response) related to this requirement, in a compliance file at the plant site. The project owner shall notify the CPM in the first Monthly Compliance Report that letters have been mailed and that copies are on file.

TLSN-6 The project owner shall ensure the grounding of any ungrounded permanent metallic objects identified during transmission line construction within the right-of-way, regardless of ownership. Such objects shall include fences, gates, and other large permanent chargeable objects. These objects shall be grounded according to procedures specified in the National Electrical Safety Code.

In the event of a refusal by the property owner to permit such grounding, the project owner shall so notify the CPM. Such notification shall Include, when possible, the owner s written objection. Upon receipt of such notice, the CPM may waive the requirement for grounding the object involved.

Verification: At least 10 days before the line is energized, the project owner shall transmit to the CPM a letter confirming compliance with this condition.

VI. PUBLIC HEALTH AND SAFETY

Operation of the Sunrise Cogeneration and Power Project will create combustion products and utilize certain hazardous materials that could expose the general public and workers at the facility to potential health effects. The following sections describe the regulatory programs, standards, protocols, and analyses that address these issues.

A. AIR QUALITY

This section examines the potential adverse impacts of criteria air pollutant emissions resulting from project construction and operation. The Commission must find that the project complies with all applicable laws, ordinances, regulations, and standards related to air quality. National ambient air quality standards (NAAQS) have been established for air contaminants identified as criteria air pollutants. These include nitrogen dioxide (NO_2) sulfur dioxide (SO_2), carbon monoxide (CO), ozone (O_3), hydrogen sulfide (H_2S), and particulate matter less than 10 microns in diameter (PM_{10}) as well as its precursors: nitrogen oxides (NO_x), and volatile organic compounds (VOC).

The federal Clean Air Act requires new major stationary sources of air pollution to comply with New Source Review (NSR) requirements in order to obtain permits to operate. The U.S. Environmental Protection Agency (USEPA), which administers the Clean Air Act, has designated all areas of the United States as attainment (air quality better than the NAAQS) or nonattainment (worse than the NAAQS) for criteria air pollutants.

SUMMARY OF EVIDENCE

The Sunrise Cogeneration and Power Project proposes to construct and operate a nominally rated 320 megawatt cogeneration facility in western Kern County which will produce electricity to be sold in the deregulated market and will

produce steam to be used in the adjacent oil fields. The project will consist of two General Electric Frame 7FA combustion turbine generators (CTGs) equipped with dry low nitrogen oxide (NO_x) combustors, two heat recovery steam generators (HRSGs) equipped with selective catalytic reduction (SCR) with ammonia injection for NO_x emission control, and associated support equipment. Dedicated continuous emissions monitoring systems will sample, analyze, and record NO_x, carbon monoxide (CO), and oxygen (O_2) concentration in the exhaust gas from each HRSG stack. (Ex. 49, p. 2.)

The western portion of Kern County has been designated as a federal and state nonattainment area for ozone and PM_{10}. The San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD or District) has an air quality plan for achieving attainment pursuant to the State and Federal Clean Air Acts. The plan is designed to allow new sources to be permitted while maintaining progress toward clean air goals. Included in the plan are new source review provisions requiring emission offsets for new sources and retrofit measures for existing sources. USEPA considers attainment status for criteria pollutants other than ozone and PM_{10} as unclassified due to insufficient monitoring data. (*Ibid*.)

1. SJVUAPCD s Final Determination of Compliance

On November 4, 1999, SJVUAPCD issued its Final Determination of Compliance (FDOC) for the Sunrise project.[26] The SJVUAPCD representative testified that the FDOC was complete, and that the District had determined that the Sunrise project satisfied all District rules, including requirements for Best Available Control Technology (BACT), and requirements for offsets. (1/10/00 RT 189.) He stated that complete offsets have been identified for the project and that the offsets fully meet the District s criteria. (1/10/00 RT 190-191.)[27] The witness

[26] Exhibit 59, received into evidence on January 10, 2000.

[27] However, at the evidentiary hearing of January 13, 2000 Matt Haber, Chief of the Permits Office for USEPA, Region IX stated that the FDOC submitted to the Energy Commission is not valid. (1/13/00). This matter is discussed in further detail *infra*.

added that the amount of offsets provided more than mitigate the emissions from the project. (*Ibid*., lines 23-24.)

AIR QUALITY Table 1
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Standard	California Standard
Ozone (O3)	1 Hour	0.12 ppm (235 μg/m^3)	0.09 ppm (180 μg/m^3)
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
	1 Hour	35 ppm (40 mg/m^3)	20 ppm (23 mg/m^3)
Nitrogen Dioxide (NO_2)	Annual Average	0.053 ppm (100 μg/m^3)	---
	1 Hour	---	0.25 ppm (470 μg/m^3)
Sulfur Dioxide (SO_2)	Annual Average	80 μg/m^3 (0.03 ppm)	---
	24 Hour	365 μg/m^3 (0.14 ppm)	0.04 ppm (105 μg/m^3)
	3 Hour	1300 μg/m^3 (0.5 ppm)	---
	1 Hour	---	0.25 ppm (655 μg/m^3)
Respirable Particulate Matter (PM10)	Annual Geometric Mean	---	30 μg/m^3
	24 Hour	150 μg/m^3	50 μg/m^3
	Annual Arithmetic Mean	50 μg/m^3	---
Fine Particulate Matter (PM2.5)	24 Hour	65 μg/m^3	---
	Annual Arithmetic Mean	15 μg/m^3	---
Sulfates (SO_4)	24 Hour	---	25 μg/m^3
Lead	30 Day Average	---	1.5 μg/m^3
	Calendar Quarter	1.5 μg/m^3	---
Hydrogen Sulfide (H_2S)	1 Hour	---	0.03 ppm (42μg/m^3)
Vinyl Chloride (chloroethene)	24 Hour	---	0.010 ppm (26 μg/m^3)
Visibility Reducing Particulates	1 Observation	---	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.

Source: Staff FSA, Part 3, (Exhibit 54), p. 7.

2. California Environmental Quality Act (CEQA) Requirements

The Commission not only reviews compliance with Air District rules but also evaluates potential air quality impacts according to CEQA requirements. (See Cal. Code of Regs., tit. 14, App. G [CEQA Guidelines, Appendix G].)

3. Regional Air Quality

a. Meteorology

The Sunrise project is proposed for the dry western portion of Kern County. Annual rainfall in the Bakersfield area is only 5.7 inches. Daily maximum temperatures during the December-January months are a relatively mild 57¡F, with lows averaging 38¡F. At the Maricopa weather station, a record high of 115¡F and record low of 15¡F were measured. These temperatures are used in determining the maximum possible emissions from the project and the maximum emissions impacts in the air dispursion modeling analysis.

Winds in the area are strongly influenced by the Temblor Range to the west and the marine air that enters the Central Valley through the Carquinez Strait and Altamont Pass in the Bay Area to the north. Winds are usually of higher speeds during the summer than in winter when calm and stagnant atmospheric conditions can occur between storms and the influence of the marine air from the coast is significantly diminished.

Along with the winds, another climatic factor affecting emission impacts is atmospheric stability and mixing height. During the daylight hours of summer there is more turbulence, more mixing, and less stability. At these times there is more air pollutant dispersion and thus fewer air quality impacts from a large emission source such as the Sunrise project. During winter months very stable

atmospheric conditions can form, resulting in little mixing, and generally higher air quality impacts. (Ex. 54, p. 5.)

b. Ambient Air Quality

Ambient air quality data has been collected by local oil companies for a number of years. Ambient air quality data from 1992 through 1995 collected at the Westside Operators Fellows site, located approximately 4 miles south-southeast of the project site is shown in AIR QUALITY Table 2. The data shows no violations during the period of the air quality standards for NO_2, SO_2, or CO. (Ex. 54, p. 8.)

Ambient air quality data is also available from the Air Resources Board s ozone monitor in Maricopa, located 18 miles south-southeast of the project site, and the Taft College PM_{10} monitor, located 10 miles south-southeast of the project site. This data is displayed in AIR QUALITY Table 3. It shows frequent violations of the state 1-hour ozone and 24-hour PM_{10} standard between 1992 and 1997. (*Ibid.*)

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AIR QUALITY Table 2
PM10, NO_2, CO and SO_2 Ambient Air Quality Data Collected at Fellows

Pollutant	Averaging Time	1995	1994	1993	1992	Most Restrictive Ambient Air Quality Standard
PM10	24 hours	80	85	109	104	50
	Annual	24.6	25.9	31.0	35.7	30
NO_2	1 hour	62	94	92	84	470
	Annual	12.6	14.4	16.6	20.6	100
CO	1 hour	2440	2303	2941	2713	23,000
	8 hour	1869	1985	2222	1783	10,000
SO_2	1 hour	65	94	36	78	655
	3 hours	36	57	27	52	1300
	24 hours	13	20	14	14	130
	Annual	1.5	1.8	1.8	1.7	80

Source: Staff FSA, Part 3, (Exhibit 54), p. 9.

AIR QUALITY Table 3
Ozone and PM10 Ambient Air Quality Data

Pollutant & Location		1997	1996	1995	1994	1993	1992
Ozone Maricopa	Max. conc.(ppm)	.12	.12	.13	.13	.12	0.11
	# days exceed standard	24	63	57	11	17	25
PM10 Taft College	Max. conc. ($\mu g/m^3$)	78	94	93	64	118	110
	# days exceed standard	6	12	15	6	13	15
	% of samples above 24-hour standard	10%	20%	25%	11%	23%	25%
California Ozone Ambient Air Quality Standard: 0.09 ppm (1-hour average) National Ozone Ambient Air Quality Standard: 0.12 ppm (1-hour average) California PM10 Ambient Air Quality Standard: 50 $\mu g/m^3$ (24-hour average)							

Source: Staff FSA, Part 3, (Exhibit 54), p. 9.

i. Ozone

Ozone is not directly emitted from stationary or mobile sources, but is formed as the result of chemical reactions in the atmosphere between directly emitted air pollutants. Nitrogen oxides (NO_x) and hydrocarbons (Volatile Organic Compounds or VOCs) interact in the presence of sunlight to form ozone. The most recent California Air Resources Board (CARB) report on the contribution of various air districts to ozone violations in other districts concluded that San Joaquin Valley air basin contributes measurably to ambient ozone levels in other districts, and that other districts contribute to the ozone problems in the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD). Thus, zone formation is a regional problem.

ii. PM_{10}

PM_{10} can be emitted directly or can form many miles downwind from the emission source if various precursor pollutants interact in the atmosphere. Gaseous emissions of pollutants like NO_x, SO_x, and VOC from turbines, and ammonia from NO_x control equipment can, under certain meteorological conditions, form particulate matter known as nitrates (NO_3), sulfates (SO_4), and organics. These are known as secondary pollutants since they are not directly emitted from a source but are formed through complex reactions in the atmosphere. (Ex. 54, p. 10.)

Commission staff has concluded that based on information from the District and from CARB, (1) NO_X emissions contribute significantly to the formation of particulate nitrate in the region and, (2) ammonium nitrate is the largest contributor to PM_{10} levels during the winter when ambient PM_{10} levels are at their highest. (*Ibid*.)

4. Potential Impacts

a. Construction

APPLICANT

One of the most contested areas in the Sunrise proceeding concerned the impacts that project construction will have on air quality. Applicant presented a panel of experts to address various aspects of construction impacts.[28] Applicant stated that it estimated construction emissions using USEPA-approved emission and load factors and that it modeled the short-term and annual impacts of criteria pollutants using an EPA-approved model and meteorological data from Fellows.[29] Applicant s models showed that Sunrise construction emissions will not cause new violations of state and federal ambient air quality standards. (1/10/00 RT 40.)

Applicant s witnesses noted that while the Sunrise project will contribute to existing violations of state PM_{10} standards, the project will provide PM_{10} offsets to mitigate the impacts. Sunrise will also provide mitigation for construction emissions of VOC, NO_x, SO_x, and PM_{10} by surrendering its emission reduction credits (ERC s) prior to commencement of construction as required by Condition of Certification **AQ-18**. Sunrise believes that these ERC s along with the terms of Conditions of Certification **AQ-C1** and **AQ-C2** insure that the project will not have any significant impact on air quality due to construction impacts. However, Sunrise disagrees with Staff s recommendation for requiring oxidizing catalysts on the exhaust stacks of construction equipment. Applicant s position is that the equipment emissions will not be significant and are addressed by offsets. For

[28] Paul Fields, Arnold Srackengast, and David Stein.

[29] The use of meteorological data for Fellows is approved by both USEPA and the District.

the same reason, Sunrise disagrees with CURE s recommendation that oxidizing soot filters be placed on the exhaust of heavy equipment.[30] (*Id*., RT 42.)

Sunrise defended its modeling approach against criticism by CURE. Applicant testified that, unlike CURE, it used the most recent emission factors. (1/10/00 RT 40.) Sunrise argued that CURE also used the wrong meteorological data and improperly applied the ozone limiting method in its modeling. (1/10/00 RT 43-45.) Applicant stressed that it used available actual measured values in its calculations rather than arbitrarily applying a predicted value, such as CURE s. Using measured data, Sunrise believes it more accurately represented conditions at the site and demonstrated no impacts. (1/28/00 RT 162.) Applicant added that Sunrise s modeling properly assumed 50 percent control efficiency for PM_{10} emissions but that 90 percent control is actually expected from the control measures contained in Condition of Certification **AQ-C1**. (1/10/00 RT 46.)

Sunrise opposition to any requirement for oxidizing soot filters is based in part on its belief that construction emissions for the project are not significant and are fully offset by ERCs. (1/10/00 RT 41.) In addition, Applicant argues that soot filters are infeasible for the project because they require a continuous high exhaust temperature of over 700¡F and are therefore impractical for use in off-road heavy equipment which spends significant amounts of time idling. The Sunrise expert on soot filters claimed that the filters only work on a limited type of equipment and often plug up and cause equipment to stall. (1/11/00 RT 235.) He estimated that the cost of installing soot filters for the project could run approximately $180,000 in capital cost plus performance losses, increased fuel consumption, and maintenance cost leading to a total estimate of $360,000 or more. (1/11/00 RT 237.)

[30] The Staff FSA section on Air Quality (Ex. 54) also recommended the use of soot filters. However, Staff later withdrew its recommendation (Ex. 55) and substituted oxidizing catalyst for soot filters.

Sunrise further argues that oxidizing soot filters are unwarranted because the project will surrender over 13 times the amount of estimated construction emissions. (Ex. 51, Testimony of Stein, p. 7) and because soot filters are infeasible mitigation to control construction exhaust emissions.

STAFF

Staff evaluated the Sunrise project s potential for causing significant PM_{10} impacts during construction and concluded that the potential does exist. Staff testified that it is inappropriate to rely on ERCs to mitigate construction impacts because they are not designed to correct for short-term impacts. (1/10/00 RT 63-64.) Moreover, Staff witness Joe Loyer testified to the difficulty of accurately quantifying construction emissions, thus making it difficult to conclude that the emissions are adequately offset by ERCs. He stated that Commission policy is to consider surrendered ERCs as not mitigating construction impacts. (*Id*., RT 69.)

To address construction impacts the Staff FSA recommended requiring the Applicant to use a combustion soot filter. Staff testified that this condition would reduce CO and VOC emissions by 80-90 percent and reduce PM_{10} emissions by 90-99 percent. (Ex. 54, pp. 18, 34.) However, after filing the FSA, Staff relied on a communication from Applicant s consultant indicating that the use of oxidizing soot filters is not appropriate for the type of construction equipment that will be used by the Sunrise project. (Ex. 55, p. 3.) As a result, Staff changed its recommendation to that of requiring an oxidizing catalyst which removes comparable amounts of CO and VOC but only 40-45 percent of PM_{10} emissions. (*Ibid*.) Staff believes oxidizing catalysts are more feasible than soot filters since the oxidation catalyst can perform at only 200¡F rather than the 700¡F temperature required for soot filters. (1/10/00 RT 77.)

Concerning NO_2 impacts, Staff agreed with the recalculations of construction impacts presented in Applicant s testimony and believes it demonstrates that the

project will not violate the one-hour NO_2 standard. (Ex. 49, p. 9.) In the view of Staff, Applicant s second analysis is conservative and actually overstates NO_2 impacts from project construction. Staff expressed the opinion that CURE has provided no evidence that Applicant s analysis is flawed and urges the Commission to find that the project s heavy duty equipment will not cause NO_2 impacts.

Regarding ozone impacts, Staff points out that CURE has argued the existence of significant impacts by applying standards adopted by other agencies as screening tools to determine whether further analysis is required. Staff notes that these thresholds have been developed by the other agencies for purposes other than those of the Commission. However, Staff argues that CURE s testimony fails to quantify any alleged impact and that CURE has not otherwise presented evidence that operation of Sunrise s construction equipment will create significant ozone impacts.

CURE

Not satisfied with Applicant s original modeling in the AFC, CURE conducted its own modeling of construction emissions and found that the impacts from equipment exhaust exceed state ambient standards for NO_x and exceed significance thresholds for ozone. (Ex. 56, Att. 1, pp. 10-15.) CURE s modeling shows a significant exceedance of the state one-hour standard for NO_x. (*Id.*, p. 13.) CURE also is critical of Applicant s second modeling effort, claiming that Applicant s use of drill rig emission factors results in an underestimation of impacts. (1/10/00 RT 98-103, 152.)

In addition to oxidizing soot filters, CURE also recommends that NO_x emissions for construction equipment be mitigated through a series of measures including ceramic coating systems for diesel engines, engine timing retard, fuel additives and others. (Ex. 56, Att. 1, pp. 36-44.)

CURE also argues that significant amounts of ozone will be formed from construction equipment exhaust by downwind chemical reactions between NO_x and VOCs. (Ex. 56, Att. 1, p. 14.) By calculating NO_x and VOC emissions from the project, CURE estimated that project emissions will exceed significance thresholds for construction emissions and exceed operational significance thresholds established by the SJVUAPCD. (*Ibid*.) In addition, comments made by Larry Allen of the San Luis Obispo County Air Pollution Control District (SLOCAPCD), raised concerns that the Sunrise project would contribute to significant ozone transport from the SJVUAPCD into the SLOCAPCD. (1/10/00 RT 129-133.)

Project construction impacts from PM_{10} will be significant in CURE s view and must be mitigated. While all parties acknowledge the need to mitigate PM_{10} impacts, there is disagreement among the parties as to the appropriate mitigation. CURE is critical of Applicant s fugitive dust control measures, considering them inadequate. CURE argues that Applicant significantly underestimates fugitive dust impacts for a number of reasons. First, CURE argues that Applicant used an inappropriate emission factor. (1/10/00 RT 92.) Second, that Applicant assumed far too little silt content in local soils; 8.2 percent instead of the actual average of 61-70 percent. (1/10/00 RT 96-97.) Third, CURE believes Applicant over-counted emission reductions by using an emission factor that assumes dust control measures are already in place. (1/10/00 RT 93-95.)

CURE challenged the Staff proposal that oxidation catalyst be installed on construction equipment, arguing that it cannot meet Staff s claims and will not eliminate significant impacts. The CURE witness noted that the reduction percentage of 40-45 percent assumed by Staff can only be achieved by adding metals to the oxidation catalyst. Doing so will produce sulfates which is not allowed in California. (1/10/00 RT 123.)

To reduce the project s construction-related PM_{10} and VOC emissions, CURE recommends that the Commission require Applicant to install oxidizing soot filters on all heavy construction equipment. The soot filters would reduce diesel particulate matter over 90 percent while also removing toxic compounds such as acrolein, a potential public health hazard. (1/10/00 RT 85-86;1/11/00 RT 267-268.) Dr. Fox testified that in her experience, soot filters were feasible and cost effective in the range of $2000 to $5000 per ton, based on studies of soot filters actually used on construction equipment. (1/10/00 RT 89.) CURE s expert witnesses, who supply soot filters for construction equipment in California, agreed with Dr. Fox s cost estimates and noted that the filters are used widely in construction work, without experiencing problems.[31] (1/10/00 RT 120-122, 142-143.) Mr. Frasch testified that the oxidizing soot filter is state-of-the-art technology which has been around for about ten years. (1/10/00 RT 121-122.)

CURE criticized Staff for withdrawing its recommendation of soot filters based on faulty information. While Staff believed the filters require a steady 700¡F engine temperature to perform, CURE s witness testified that the filters will achieve 100 percent regeneration if the filter reaches 700¡F for 25 percent of an eight-hour work shift. (1/10/00 RT 121.) CURE pointed out that the vendor which Staff relied upon for information utilizes outdated equipment requiring expensive kiln regeneration that is not certified for use in California. (Ex. 55, p. 3.)

[31] Andrew Garcia and Stephen A. Frasch represent Engelhard brand soot filters.

b. Operation Impacts

APPLICANT

Direct operation impacts include emissions during startup, operation and shutdown of the system components.[32] Applicant s witness[33] testified that its modeling showed operation of the Sunrise project will not cause any new violation of the state and federal air quality standards but will contribute to existing violations of the state ambient standard for PM_{10}. Sunrise will mitigate the impact by providing PM_{10} offsets. The witness added that the amount of ERCs will meet District rules and that all ERCs are valid. She stated that based on the ERCs provided and on compliance with the Staff s recommended Conditions of Certification, the impacts of operating the Sunrise project will not be significant and the project will comply with all laws, ordinances, regulations, and standards. (1/10/00 RT 278-279.)

At the January 28, 2000, evidentiary hearing Applicant s attorney announced that the Sunrise project will install a CO oxidation catalyst on the Sunrise turbines. (1/28/00 RT 99.) In doing so the Sunrise project joins most recently-licensed power plants in using oxidation catalyst technology.[34] This announcement also removed an issue of contention in the case regarding CO emissions (1/28/00 RT 104.)

[32] System components include: two GE frame 7FA CTGs equipped with dry low NOx combustors, and two HRSGs equipped with SCR with ammonia injection for emissions control.

[33] Paul Fields.

[34] Recently licensed power plants which include a CO oxidizing catalyst include the Sutter, Pittsburg, and La Paloma projects.

Sunrise also presented evidence that the project will not form secondary PM_{10}. CURE has argued that ammonia released from the SCR system used to control NO_x emissions can form large amounts of particulate matter in the atmosphere. (Ex. 56, pp. 18-24.) Sunrise countered that first, the San Joaquin Valley is an ammonia-rich area and therefore any ammonia slip from the project will not contribute significantly to reactions with NO_x or SO_x which could lead to the formation of secondary PM_{10}. Second, Applicant testified that by providing ERCs the project is creating a net air quality benefit to the area by reducing the amount of NO_x and SO_x. (1/10/00 RT 280.)

Applicant also countered CURE s accusation that the project offers inadequate PM_{10} offsets during plant operation since Sunrise s vendors will only guarantee emissions of 18 pounds per hour of PM_{10}, while the FDOC requires the project to perform at the lower rate of 9 pounds per hour. (1/10/00 RT 285.) The PM_{10} offsets for Sunrise assume performance at the lower 9 pounds per hour level. Applicant testified that because the 9 pounds per hour rate is a condition in the FDOC, Applicant bears the risk if the level is not achieved. Both the Applicant and the SJVUAPCD stated that based on source tests of similar turbines, the 9 pounds per hour level is feasible. Applicant s witness David Stein stated that the PM_{10} emission rate is primarily a function of the quality of the natural gas fuel and the combustion efficiency of the power plant. In addition, the project will employ high efficiency filters on the turbines to minimize PM_{10} concentrations. (1/10/00 RT 295.)

STAFF

Commission Staff testimony regarding the operational impacts of the Sunrise project on air quality agreed with that of Applicant. Concerning CURE s accusation that the project will form secondary PM_{10} due to ammonia slip, Staff acknowledged that PM_{10} formation is a complicated matter involving many uncertainties. However, Staff believes that ammonia slip from the Sunrise project will be insignificant. (Ex. 54, p. 30.)

Staff was also concerned with Applicant s position regarding the project s PM_{10} offset liability. Staff believes that experience with similar turbines has demonstrated the Sunrise project can actually achieve 9 pounds per hour of PM_{10} emissions and that the District will enforce this limit by requiring source tests on the project. Staff points out that if unexpected compliance difficulties arise, the District can respond and, if needed, require additional ERCs. (Staff Topic Group C Reply Brief, p. 5.)

CURE

CURE challenged the project s ability to meet operational air quality requirements on three grounds: CO emissions, ammonia slip and PM_{10} offset liability. CURE s concerns regarding CO emissions leading to ozone formation were largely satisfied when Applicant announced it will install CO oxidizing catalysts on its turbines. (1/28/00 RT 104.) Concerning ammonia slip, CURE argues that the permit level of 10 ppm is too high and will result in secondary PM_{10} formation when the ammonia reacts with SO_3 and NO_2 which are formed from the combustion of natural gas. CURE s analysis shows that the additional PM_{10} likely to be formed is significant and has not been offset or mitigated by Sunrise. (Ex. 56, pp. 19-23.)

CURE also testified that since the project s vendors will only guarantee PM_{10} emission levels of 18 pounds per hour, the project should be required to provide offsets based on that level, rather that the 9 pounds per hour level contained in the FDOC. As evidence of the need for more PM_{10} offsets, CURE points to several factors: 1) the vendor s unwillingness to provide a low-level guarantee; 2) numerous source tests from similar turbines which are unable to achieve 9 pounds per hour; and, 3) to the fact that the project s PM_{10} emissions will not be monitored on a continuous basis. (Ex. 57, pp. 22-27; 1/28/00 RT 96; 1/10/00 286.) As a result, CURE claims it will be impossible to detect violations. Finally, CURE argues that other projects licensed by the Commission have provided

PM_{10} offsets based on an 18 pounds per hour emission rate. (1/28/00 RT 104-105.)

CURE wants the Commission to mitigate for ammonia slip by either requiring a 2 ppm level (rather than the 10 ppm contained in the FDOC) or alternatively, requiring the proposed oxidizing catalyst to reduce ammonia as well as CO. (Ex. 56, p. 29, Att. 15.) CURE adds that the use of SCONOx, instead of the SCR system, would use no ammonia and thus would be another way to eliminate the ammonia slip problem. To adjust for the perceived lack of PM_{10} offsets, CURE recommends requiring Applicant to obtain at least 79.3 tons per year of additional PM_{10} offsets. (Ex. 56, p. 24.)

c. Indirect Impacts

Indirect impacts, also referred to as secondary effects, are defined in the CEQA guidelines as those impacts caused by a project that may occur either later in time or at some distance from the project site but that are still reasonably foreseeable. (Cal. Code of Regs., tit. 14, ⁄ 15358.) In the Sunrise case, the scope of review of indirect impacts from the project was defined in the Joint Blueprint, agreed to by Staff and Applicant and adopted by the Commission as appropriate for CEQA review of the project.[35] (Ex. 23, Figure 1.)

[35] Joint Blueprint of the California Energy Commission and Sunrise Cogeneration and Power Company for analyzing the Environmental Effects of Sunrise Cogeneration and Power Project, Friday, May 21, 1999.

APPLICANT

Ms. Paula Fields, an air quality expert for Sunrise, testified that indirect emission sources for the project include construction and operation of the 700 new wells, and operation of TCI s water treatment facility and the Valley Waste wastewater facility which will serve the Sunrise project. She noted that she reviewed the Staff s indirect impacts analysis and agrees with Commission staff that the project will impose no significant indirect air quality impacts. (1/28/00 RT 110.)

Ms. Fields stated Applicant s disagreement with CURE s conclusion that well drilling will violate the one-hour NO_2 standard and detailed the reasons why she believed CURE s calculations are flawed. She stated first, that CURE used emission rates from well drilling which are higher than those allowed by District Rule 2280. Second, that CURE applied outdated USEPA emission rates and that applying current emission rates shows no violations of NO_2 standards. (1/10/00 RT 111.) Third, CURE used meteorological data from McKittrick which was shown to be less accurate than data from Fellows. (Ex. 49.) Finally, CURE inappropriately applied the ozone limiting method using an assumed ozone concentration instead of actual measured values which were available. (1/28/00 RT 162.) Applicant argues that CURE s position is supported only through speculation.

During cross-examination, Applicant drew the admission from CURE s witness, Dr. Fox, that multiple well drilling by various oil field operators is currently going on in Kern County and there are additional NO_x sources in the oil field as well. Yet notwithstanding all these numerous NO_x sources, Applicant points out there have been no measured violations of the one-hour NO_2 standard at Fellows, the closest air quality monitoring station to the Sunrise site and the Midway Sunset oil field. (1/28/00 RT 154.)

On behalf of Sunrise, Ms. Fields stated that contrary to CURE s assertions, the project will have no significant indirect impacts related to VOC emissions from

either the treatment of the produced water from the oil field or the disposal of water from Sunrise to Valley Waste. She added that Valley Waste VOC emissions are associated with existing open ponds. The small incremental addition of water from the Sunrise project will not trigger the addition of new ponds nor add to the surface area of existing ponds. (1/28/00 RT 111-112.)

Ms. Fields went on to address hydrogen sulfide emissions from well operation, disagreeing with CURE s assertion that the emissions are significant. She stated that when CURE s calculations are corrected for the appropriate control efficiency and the correct number of oil production wells, even the application of CURE s own modeling would show an insignificant impact. (1/28/00 RT 112-113.)

Applicant testified that the operation of new wells related to the Sunrise project will not result in significant air quality impacts. They criticize CURE s argument to the contrary, stating that CURE s modeling is based on inappropriate spot measurements, the wrong emission factors, the wrong control efficiencies, an incorrect number of production wells, and a double counting of fugitive emissions. Sunrise notes the testimony of Mr. Sadredin of the SJVUAPCD, who stated that new wells will be required to meet a control efficiency of 99.9 percent vapor control and must apply BACT. (1/28/00 RT 181.)

Applicant s witness David Stein testified that CURE s measurements of hydrogen sulfide do not comply with CARB reference methods for determining one-hour average hydrogen sulfide ambient background. In fact, he noted that CURE s measurements for background H_2S are 24-second samples, with not a single measured value that is a full one-hour average. (1/28/00 RT 163-165.) Ms. Fields stated that both CURE and Commission staff modeled well emissions from all 700 new wells whereas only 455 of the new wells are production wells. (1/28/00 RT 112.) The other 245 wells are injection wells and have no emissions associated with them.

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Applicant s testimony was supported by that of Mr. Sayed Sadredin, Director of Permit Services for the SJVUAPCD. He explained how oil well emissions are controlled using Best Available Control Technology (BACT) and that emissions associated with the wells and storage tanks are subject to the District s New Source Review rules. Emissions remaining after application of BACT must be fully offset (1/28/00 RT 181.) He testified that CURE s VOC and H_2S figures were overestimated by a factor of nine or ten and agreed with Sunrise that the overestimate was due to CURE s use of outdated emission factors and the double-counting of fugitive emissions. (1/28/00 RT 182.)

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Staff also criticized CURE s approach stating that CURE s ozone scavenging method is not reliable and that quantifying impacts using that method becomes very speculative. Therefore, Staff recommends against including ozone scavenging in an analysis of NO_2 impacts from well construction activities. (1/10/00 RT 63.) Staff conducted its own analysis to determine whether NO_2 emissions from well construction would create violations of the one-hour NO_2 standard. Staff concluded that such emissions could approach the one-hour standard but that there was no evidence the standard would be violated. (Ex. 54, p. 24.) Staff believes that Applicant s modeling exercise to estimate NO_2 impacts from well construction supports the analysis conducted by Staff. Commission staff then concludes that there is no credible evidence that well construction will cause a violation of the NO_2 standard. (1/10/00 pp. 62-63.)

Staff argues that to support CURE s position of significant NO_2 impacts from well construction requires linking multiple assumptions that various unlikely events will occur simultaneously. Staff believes that such a degree of speculation is not appropriate for an environmental analysis conducted under CEQA. (Staff Topic Group C Reply Brief, p. 4.)

Staff joins Applicant in determining that indirect impacts from well operation will not be significant. Staff faults CURE s testing method for H_2S and its mistake (which staff admits to committing as well) of counting 700 wells rather than the actual 455 production wells. Staff defends its use of a 99.9 percent emission control factor based on testimony from the District and the fact that regardless of what emission control problems occurred before this time, all 455 new production wells associated with the Sunrise project will have to meet the 99.9 percent control requirement. (1/28/00 RT 186.)

Staff also points out that CURE is mistaken in trying to include the impacts from 1,300 existing wells that may be served by the project. In carrying out its analysis Staff contacted Texaco regarding its plans for the steam generators which now serve the 1,300 wells and was informed that Texaco has not decided what it plans to do about the steam generators. (1/28/00 RT 116-117.) Staff argues that CURE s attempt to assume what Texaco s plan will be for the steam generators is too speculative to evaluate and is therefore contrary to CEQA s guideline that an agency should not speculate on potential impacts.[36] (Cal. Code of Regs., tit. 14, // 15144, 15145.) Staff adds that one could just as easily speculate that Texaco could keep the steam generators as backup, retire them to create Emission Reduction Credits, or sell them to another producer.

[36] If, after a thorough investigation, a lead agency finds that a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact. (Cal. Code of Regs., tit. 14,/15145.)

In the view of Staff, CURE is also being excessively speculative when it seeks to include oil field storage tanks in the analysis since it is impossible to directly link the tanks with specific wells. Furthermore, Staff notes that the District and oil field producers are currently taking steps to increase emission controls on oil field storage tanks. (Ex. 54, p. 25.) Finally, Staff points out that no evidence links the Sunrise project with significant VOC emissions at Valley Waste or for that matter, any increase in such emissions. Based on the evidence, Staff urges the Commission to find that there will be no significant VOC emissions at Valley Waste attributable to the Sunrise project. (Staff Topic Area C Reply Brief, p. 8-9.)

CURE

CURE contends that the Sunrise project will have significant indirect impacts on the environment which the Conditions of Certification recommended in the Staff FSA do not mitigate. These include the drilling and operation impacts from the 700 anticipated new wells, all impacts from 2,000 wells which could receive steam from the project (including pipes and storage tanks which are appurtenant thereto), and indirect air quality impacts from increased use of a local wastewater treatment and disposal facility. CURE also argues that the analysis of Staff and Applicant regarding these matters is wrong.

Addressing the drilling of new wells, CURE asserts that: 1) even drilling a single well will violate the state one-hour NO_2 standard; 2) that Staff s analysis underestimates the amount of NO_2 emissions; and, 3) that the Staff analysis also fails to assume more than one well will be drilled at a time. (Ex. 56, Att. 1, p. 18.) CURE also attacks Applicant s analysis for using construction equipment emission factors (rather than those for drill rigs) and ignoring District prohibitory rules. CURE argues that: 1) drill rig engines are older and dirtier than those modeled by Applicant; 2) they operate at full throttle, unlike construction equipment engines; 3) the types of engines are different; and, 4) Applicant assumed too short an operating period for drill rig engines. (1/28/00 RT 138-139.)

CURE adds that the evidence does not support application of District Rule 2280 to the new drill rigs. (CURE Topic Group C Reply Brief, p. 5.)

CURE also believes that the Commission should analyze the indirect impacts of all 2,000 wells which could be supplied steam by the Sunrise project, rather than only the 700 new wells analyzed by Staff. CURE argues that if the existing steam generators on the existing 1,300 wells are not retired, they could be used to increase production elsewhere, thereby increasing overall oil field development as an indirect project impact. CURE states that such a result is foreseeable under CEQA case law and therefore must be analyzed. (CURE Topic Group C Reply Brief, p. 8-9.)

CURE also faults Staff for failing to analyze emissions from oil field storage tanks which may serve the 2000 wells the Sunrise project could serve. CURE advocates that these storage tanks should have been analyzed, according to the terms of the Joint Blueprint. Furthermore, that existing tanks have been shown to control only 90 percent of emissions, not the 99.9 percent assumed by staff. (Ex. 56, Att. 1, p. 27; Ex. 58, p. 20.)

According to CURE, Staff also erred in not analyzing the indirect air quality impacts of the Sunrise project resulting from Texaco s expansion of its wastewater treatment facility. CURE argues that the facility will be expanded to receive wastewater from the Sunrise project. The expanded use will, in CURE s view, significantly increase VOC emissions from the treatment facility and these increased emissions have not been offset. (Ex. 56, p. 10-12.)

To address these various indirect impacts, CURE recommends the Commission require the Sunrise project to carry out the following mitigation measures: 1) reduce oil drilling rig NO_x emissions by retrofitting drilling rig engines to certified low-emission levels; 2) alternatively, carry out a series of CARB-approved tune-up measures on oil rig engines (1/10/00 RT 138); 3) require vapor control on all

wells which are supplied steam by the project (Ex. 56, p. 26); 4) require vapor control on all storage tanks that would receive oil from wells within the _-mile radius around the project site (*Id*., p. 27); and, 5) control open wastewater pits and waste ponds by means of controlled tanks. (*Ibid*.)

d. Cumulative Impacts

Cumulative impacts refer to two or more individual impacts that, when considered together, are considerable or that compound or increase other environmental impacts. The cumulative impact of several projects is the change in the environment that results from the incremental impact of the project when added to other, closely related past, present, or reasonably foreseeable, probable future projects. These impacts can result from individually minor but collectively significant projects taking place over a period of time. (Cal. Code of Regs., tit. 14,/15355.)

Both Commission staff and Applicant testified that the Sunrise project will not result in any significant construction or operational cumulative air quality impacts when the project is analyzed in conjunction with other reasonably foreseeable projects in the region.[37] Applicant s witness testified that cumulative construction impacts will be mitigated through compliance with District rules. The three power plant projects analyzed will not cause or contribute to any new violations. They will contribute to existing violations of the PM_{10} ambient air quality standard. However, each of the projects will provide adequate PM_{10} offsets to mitigate PM_{10} emissions from the respective projects. (1/28/00 RT 195-197; Ex. 54 RT 26-28.)

[37] Cumulative impacts include air emission from construction and operation of the Sunrise project along with the La Paloma and Elk Hills projects, both located within six miles of Sunrise. (1/28/00 RT 195.)

The Commission staff conducted an air quality cumulative analysis which included the three power plant projects, the TCI main utility corridor, the Midway Sunset oil field expansion, and secondary pollutant impacts including ozone and PM_{10}. (1/28/00 RT 197.)

The Transmission Agency of Northern California (TANC) offered testimony that the Sunrise project would contribute to transmission congestion at the Midway substation.[38] TANC claims that as a result of the congestion, one of its members, Modesto Irrigation District (MID) will not be able to access southwest power, will be forced to operate MID s own local generation resources, and that operation of these plants will exacerbate local air quality problems.[39] (Ex. 62, p. 12.) TANC argues that neither the Applicant nor Commission staff have adequately examined the cumulative effects of the interconnection of Sunrise at the Midway substation along with other projects licensed and proposed for the area. (Ex. 62, p. 13.)

e. LORS Compliance

In a letter dated January 11, 2000, and again by telephone during the evidentiary hearing of January 13, 2000, representatives from the USEPA made clear their opinion that the FDOC issued by the District for the Sunrise project is not valid.[40] (1/13/00 RT 140.) USEPA representatives stated that their concerns were threefold. The first involves two settlement agreements which USEPA believes do not resolve Notices of Violation (NOVs) issued by the SJUVAPCD to Texaco Energy Production, Inc. Applicable District rules require that all major stationary

[38] Testimony of David Larson, Ex. 39; testimony of Gregory E. Salyer of Modesto Irrigation District, Ex. 62.)

[39] MID and other TANC members access southwest power over a collection of transmission lines located north of the Midway substation and known as Path 15 .

[40] USEPA representatives included: Ann Lyons, Robert Mullaney, Matt Haber, Mark Sims, and Ed Pike.

sources owned, operated, or controlled by Texaco or its affiliates in the state of California must be in compliance or on a schedule of compliance with all applicable emission standards before a valid Authority to Construct permit may be issued to the Sunrise project.[41] A similar requirement is imposed by the State Implementation Plan and the Clean Air Act.

Second, on the date the District finalized its FDOC, Texaco had several other pieces of equipment which were out of compliance with District rules. (Ex. 61; 1/10/00 RT 212-216.) Third, USEPA stated that the Applicant s supplemental certification does not demonstrate compliance with section 4.3.3 of Rule 2201. (1/13/00 RT 121.) Both Commission staff and CURE argue that the Sunrise project should not proceed to a final decision of the Commission until USEPA s concerns regarding the FDOC are resolved.

In addition to the concerns regarding the validity of the District s FDOC, CURE argues that ERCs provided by Sunrise to offset PM_{10} and NO_x emissions are invalid. (Ex. 60, Ex. 56, pp. 16.) According to CURE, the PM_{10} problem is due to the fact that the District has not identified certain of Sunrise s pre-1990 ERCs as allocated to the District s growth increment. Thus, these ERCs would not contribute to reasonable further progress towards attaining the NAAQS. CURE argues that the Sunrise ERCs therefore are not legal. CURE also claims that the District miscalculated the emissions associated with plant startup and shutdown in compliance with the definition of potential to emit under federal law and that as a result, Sunrise has failed to obtain the amount of offsets required and therefore does not comply with LORS. (CURE Opening Brief, Topic Group C, pp. 16-22.)

In responding to USEPA s challenge to the District s FDOC, Applicant argues that pursuant to Public Resources Code section 25523(d)(2), the Commission must rely on the determination of the applicable air pollution control district even

[41] SJUVAPCD Rule 2201,/4.3.3.

with respect to a project s compliance with federal air quality requirements.[42] Sunrise states that it has a Final Determination of Compliance issued by the SJVUAPCD after an extensive and thorough investigation. The rules are clear that it is the District that must be satisfied, not USEPA. (1/13/00 RT 108-109.) Sunrise argues that, based on a very limited investigation, USEPA has challenged whether or not the District should be satisfied with Texaco s certification. (1/13/00 RT 98, 108.) Rather than be distracted by the statement of USEPA officials, Applicant urges the Commission to rely on the FDOC because no violation of federal law has been shown. They argue that if USEPA ever does determine that Texaco s oil field operations are violating federal air quality standards, USEPA could, at that time, exercise its authority under the Clean Air Act. Until that time, Applicant argues, the federal officials are merely speculating prior to conducting a thorough investigation. (Applicant s Reply Brief, Topic Group C, pp. 21-23.)

Concerning the validity of the Sunrise ERC s, Applicant argues that: 1) the pre-1990 ERCs in question are the same type as were used (and approved) for the La Paloma project; 2) that the difference of opinion regarding the pre-1990 offsets is basically an accounting issue that would not affect the overall permitting process; and, 3) the amount of offsets in question are very few. (1/13/00 RT 105-107.) Sunrise notes that Mr. Sadredin of the District testified he was confident that the District and USEPA could resolve any disagreement on how the ERCs are shown in the District s Attainment Plan.(1/13/00 RT 105.)

The Commission staff acknowledges that the concerns of USEPA relate to violations at facilities owned by Sunrise affiliates, rather than by Applicant itself, and that resolution of this issue will not affect the air quality conditions applicable to the Sunrise project. Nevertheless, Staff points to portions of the Warren-

[42] Public Resources Code section 25523(d)(2) states that the Commission shall not find that a project conforms to air quality LORS unless the applicable air district certifies that complete emission offsets for the project have been identified and will be obtained prior to licensing, as required by local, state, regional, or federal air quality standards.

Alquist Act which require the Commission to make findings that the project is in conformity with federal law.[43] Staff advises that if USEPA believes the violations cause the Sunrise FDOC to be in conflict with applicable federal air quality requirements, the Commission should withhold approval of the Sunrise project until USEPA informs the Commission that the violations are adequately resolved. (Staff Reply Brief, Topic Group C, pp. 7-8.)

As to the validity of the project s offsets for PM_{10} and NO_x, Staff, staff notes the willingness of USEPA and the District to resolve the issue. Staff believes that the Commission should defer to the determination of these two regulatory agencies on this matter. (Staff Reply Brief, Topic Group C, pp. 9-10.)

As noted above, CURE s position is that due to the existence of Texaco s unresolved NOV s, the Final Determination of Compliance is invalid. They also argue that Applicant s ERCs for PM_{10} and NO_x are invalid and that due to miscalculations by the District, the project lacks sufficient ERCs and will violate LORS. (CURE Opening Brief, Topic Group C, pp. 16-22.)

COMMISSION DISCUSSION

CONSTRUCTION IMPACTS

We first address the area of air quality impacts imposed by the Sunrise project during its construction phase. CURE claims that significant ozone impacts could be created by the project s construction emissions. However, CURE based its argument on emissions thresholds used by other agencies to assist in their CEQA review of projects. The fact that a threshold is exceeded is not conclusive evidence that a significant impact will occur. In fact, we find that the evidence of record demonstrates that operation of the Sunrise construction equipment will not create significant ozone impacts.

[43] Public Resources Code sections 25523(d)(2), 25255. In no event shall the Commission make any finding in conflict with applicable federal law or regulation.

CURE also argues that the use of heavy-duty construction equipment will cause the Sunrise project to violate the state NO_2 standard. (Ex. 56, Att. 1, p. 12.) However, we are persuaded by Applicant s recalculation of NO_2 emissions. (Ex. 49.) This second analysis demonstrates that the number derived, which is below the California one-hour standard, is conservative and likely overstates the actual project impacts. We find that the weight of evidence supports the position expressed by both Applicant and Commission staff that the recalculation of NO_2 impacts is reasonable and the project will not cause any significant NO_2 impacts due to construction activities.

More problematic than impacts from ozone and NO_2, however, are PM_{10} impacts created during project construction. Applicant acknowledges that project construction will contribute to existing violations of the state ambient standards for PM_{10}. However, Sunrise argues that the Conditions of Certification will reduce construction-created PM_{10} by 90 percent and that the project will provide sufficient offsets to mitigate PM_{10} impacts. (1/10/00 RT 278.) Nevertheless, the evidence of record gives us concern regarding each of these arguments.

First, we are not convinced that the Applicant s mitigation measures will achieve 90 percent PM_{10} emission reductions as Sunrise estimates. CURE s witness challenged Applicant s PM_{10} modeling on three grounds. Without commenting on two of CURE s concerns, we are persuaded by CURE s argument that Applicant s model used an incorrect assumption for the silt content of the soil at the project site. Silt content is the fines, or tiny 75-micron and smaller material in soil, which is directly related to dust at construction sites, and to the production of PM_{10}. (1/10/00 RT 96.) Dr. Fox pointed out that Applicant relied on a model which assumed average silt content in the soil of 8.2 percent. However, she testified that, based on Applicant s own geotechnical investigation, the average silt content at the Sunrise project site is 61 percent. (1/10/00 RT 96-97.) In response to a request from the Committee, Staff soil expert Joe O Hagan later

estimated that silt content at the Sunrise site is up to 70 percent. (1/13/00 RT 298.) In fact, when Staff evaluated the project s potential for causing significant PM_{10} impacts from the use of heavy-duty construction equipment, Staff concluded that the potential exists for a significant impact. Thus, we conclude Applicant s modeling appears to underestimate PM_{10} impacts during construction.

Furthermore, Staff and CURE both testified to the difficulty in estimating emissions during a project s construction phase. Added to this is Staff s argument, joined by CURE, that ERCs were never designed to offset construction emissions. In fact, Staff testified that it is Commission policy that ERCs cannot offset construction emissions. We also note that while the Conditions of Certification recommended by Applicant address PM_{10} impacts from fugitive dust, they do not mitigate or reduce exhaust emissions from heavy-duty construction equipment.

CURE s suggested mitigation for this PM_{10} impact is that Applicant be required to install oxidizing soot filters to mitigate significant PM_{10} emissions. The evidence shows that these filters can remove greater that 90 percent of the PM_{10} emissions in diesel exhaust and will also remove VOCs (a precursor to ozone formation) and aldehydes such as acrolein.[44] By comparison, the oxidizing catalysts recommended by Staff remove a much lower percentage of PM_{10} unless loaded with sulfate-creating metals, a practice not allowed in California. (1/10/00 RT171.)

Applicant responds that soot filters are not technically feasible or cost effective. However, the weight of evidence is to the contrary. Applicant s witness, whose company Staff relied upon as a basis for abandoning the Staff recommendation to use soot filters, testified about its soot filters, which are not even certified by

[44] The potential impacts from acrolein are discussed further in the section of the Decision entitled Public Health which follows.

CARB for use in California. (1/11/00 RT 240.) We are more persuaded by the testimony of CURE s witnesses from Engelhard who stated that modern oxidizing soot filters can function well and will self-generate on heavy-duty construction equipment such as will be used at the Sunrise site. (1/10/00 RT 120-121.) The evidence shows that such modern filters are certified by CARB and will not harm heavy-duty equipment. (1/10/00 RT 88, 116-118.) While characterized as state-of-the-art exhaust emission control, such filters have been available for approximately ten years. (1/10/00 RT 121-122.)

Furthermore, both the testimonies of Dr. Fox and Mr. Fausch, of Engelhard, demonstrate persuasively that, based on their personal experience, modern oxidizing soot filters, if appropriately fitted on construction equipment, can be cost effective mitigation for exhaust emissions. (1/10/00 RT 89, 120.)

We find that the Sunrise project has the potential for causing significant impacts from PM_{10} emissions during construction unless fully mitigated. To ensure adequate mitigation of this impact, we have included a Condition of Certification which requires the use of oxidizing soot filters on construction equipment where feasible and otherwise requires oxidizing catalysts.

OPERATION IMPACTS

The Commission adopts Applicant s addition of a CO oxidizing catalyst on the power plant, and has modified Conditions of Certification **AQ-2**, **AQ-3**, and **AQ-4** to reflect this change. As required by condition 2 in the FDOC (Ex. 59), Applicant has informed the District of its decision by letter dated February 23, 2000.[45] While CURE argues in its brief that Applicant s decision must trigger a reconsideration of the DOC by the District and CARB, we believe that condition 2 of the FDOC fully anticipated and allowed for Applicant s decision to improve its

[45] Condition 2 of the Final Determination of Compliance requires Applicant to inform the District at least 60 days prior to commencing construction if it intends to install an oxidation catalyst.

project by adding the oxidizing catalyst. A requirement for recirculating the DOC would add nothing to the public record and would merely trigger undue delay.

Regarding the issue of ammonia slip, we find that the 10 ppm level included in the FDOC is typical of the level permitted throughout the state. (Ex. 54, p. 30.) Nevertheless, the weight of evidence establishes that the Sunrise project is likely to have actual ammonia slip levels in the range of 1 to 2 ppm. (Ex. 54, p. 30.) We are persuaded by Staff testimony which noted its study carried out in the La Paloma case. That work demonstrated that the San Joaquin Valley is ammonia rich in the winter months when PM_{10} levels are at their highest. (Ex. 54, pp. 29-30.) Thus, it is unlikely that ammonia from the Sunrise project will result in an increase of ammonia nitrate. We conclude that CURE has failed to persuasively demonstrate that the project will have a significant PM_{10} impact from the formation of secondary PM_{10}.

CURE also claims that additional PM_{10} ERCs are required because the offset liability identified in the FDOC is based on an emission level which Sunrise s vendor will not guarantee. CURE s calculations based on the higher guaranteed figure reveal a significant impact. However, the FDOC limits the Sunrise project to the lower level of 9 pounds per hour of PM_{10}. (Ex. 59, p. 6.) Applicant, Staff, and the District have all testified that Sunrise can achieve this lower level and that the District can enforce it through source tests. While estimating PM_{10} levels is difficult, we find that the weight of evidence supports the view that the project can operate within its permitted levels and that no additional PM_{10} offsets are required.

INDIRECT IMPACTS

CURE takes the position that significant impacts to air quality will occur as a result of drilling the 700 new wells which the Joint Blueprint assumes will receive steam from the Sunrise project. CURE s position is based on several factors, none of which persuasively support its position. The testimony of both Applicant

and Commission staff witnesses demonstrates that the emission factors used by CURE are outdated. (1/10/00 RT 62-63; 1/10/00 RT 111.) CURE applied meteorological data which the record shows was inappropriate. (Ex. 49, Fields, p. 26.) In addition, CURE applied the ozone limiting method in an inappropriate manner, using assumed ozone concentrations rather than using actual measured values. (Ex. 49, p. 24; 1/28/00 RT 162.) When these errors are corrected, the evidence demonstrates that no violation of the NO_2 standard is likely to result from drilling the anticipated wells.

Nor does the evidence of record support CURE s argument that drilling multiple wells over the period of several years will violate the NO_2 standard. Staff testimony makes clear that for such a violation to occur wells would need to be located in close proximity and that specific meteorological conditions would have to simultaneously take place. (1/28/00 RT 124-126.) It also assumes that the District will not be enforcing its rules on well drillers. In our view, such an analysis relies too much upon speculation which is not appropriate in a CEQA review. We find that well construction is not likely to cause a violation of the NO_2 standard.

We are also not convinced by CURE s argument that operation of the new wells associated with the Sunrise project will result in significant air quality impacts. CURE s method for sampling background H_2S in the oil field near the project site has not been approved by CARB as an acceptable method. Neither staff nor Sunrise find CURE s method reliable and, based on the weight of the evidence, we must agree that CURE s sampling method is suspect. In addition, CURE modeled emissions associated with 700 new wells, though only 455 of the wells will be production wells. Finally, CURE disagreed with and did not apply 99.9 percent control efficiency for oil wells and related equipment. Yet credible testimony from the District established that the new wells will be required to meet a control efficiency of 99.9 percent vapor control, that the well emissions are

subject to BACT, and that any emissions amount remaining after BACT is applied must be fully offset. (1/28/00 181.)

We also decline CURE s invitation for the Commission to consider impacts associated with 1,300 wells in addition to the 700 new wells contemplated in the Joint Blueprint. The Sunrise project is designed to produce steam which could serve a total of 2,000 wells, 1,300 of which currently exist and are part of the background analysis. CURE s logic here is based on the speculative assumption that all of the steam generators serving the 1,300 wells will be redeployed serving additional new wells. Yet, as staff testified, Texaco does not now know its plans for the steam generators and many possibilities exist as alternative fates for these steam generators.

A CEQA Guideline directs the Commission not to speculate:

> If, after a thorough investigation, a lead agency finds that a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact. (Cal. Code of Regs., tit. 14,/15145.)

We find that anticipating the reapplication of numerous existing steam generators displaced by the Sunrise project is too speculative to be productive. Likewise, it is speculative to include emissions from oil field storage tanks which may serve the new 455 production wells. To do so would require the Commission to speculate about which tanks would be used, what would be the control efficiency for the tanks at the time they are used for the Sunrise project, and what percentage of the tanks capacity should be applied to the Sunrise project. We find that Staff s approach in not taking up such speculation was reasonable.

We must also note that Texaco s air emissions in the oil field are part of an ongoing review by both the District and USEPA. If violations of air quality standards are determined in the future, such violations can and likely will be addressed by these regulatory agencies. Mr. Sandredin of the District testified

under oath that the District s regulatory program will apply to all new wells and all expanded or new facilities, requiring emission controls in accordance with BACT and District rules. (1/28/00 RT 181.) The evidence of record also establishes that any incremental emission increases from Valley Waste or TCI s water softening facilities which are indirectly associated with the Sunrise project will be very small and will not result in significant air quality impacts. (1/28/00 RT 111-112.)

Based on the reasons noted above, we find that the Sunrise project will not have significant indirect air quality impacts on the environment.

CUMULATIVE IMPACTS

In our view, the record establishes that the Sunrise project will not make a considerable contribution to any cumulative air quality impacts which are significant. TANC s attempt to connect the Sunrise project s contribution to transmission congestion with air quality problems in the Modesto Irrigation District would require degrees of speculation not authorized under CEQA nor logically justifiable. First, the Cal-ISO has not to date identified a degree of transmission congestion at Midway which will require upgrades or other physical cahnges. If and when such measures are identified, the direct, indirect, and cumulative impacts of the measures may be examined. Without knowing even the options which may be pursued, it is speculative to imagine the effect on the transmission system, let alone upon individual municipal customers on that system. [46]

Congestion on the transmission system may affect the ability of some users to access power. This is likely to become an increasing problem as more power plants are constructed. Nevertheless, these users ability to overcome access problems in the present deregulated and competitive environment will largely

[46] However, please note the Commission s discussion in the section of this Decision entitled Transmission System Engineering. There we recommend that Staff identify all reasonably foreseeable future projects and analyze the cumulative impact even where the Cal-ISO has not as yet identified a change to the system.

depend upon economic decisions. Only if such decisions will trigger a physical change in the environment must the effect be analyzed under CEQA. TANC has not established that the economic decisions of MID to operate specific power plants are even remotely tied to the Sunrise project.

COMPLIANCE WITH LORS

Notwithstanding the District s approval of the Sunrise project, the Commission cannot ignore the statements of USEPA officials that Sunrise s certificate of compliance, upon which the District s Determination of Compliance was based, is not valid. To do so would fly in the face of our own statutory requirements that [i]n no event shall the Commission make any finding in conflict with applicable federal law or regulation. (Public Resources Code section 25525.) Having officially heard from the federal agency charged with enforcing the Clean Air Act that the FDOC is invalid, the Commission cannot legally approve the Sunrise project until the legal objections of the USEPA are removed.

However, in a letter dated March 31, 2000, Matt Haber, Permits Office Chief, USEPA, Region Nine,[47] explained that since the evidentiary hearing at which USEPA representatives expressed their concerns, Texaco and USEPA officials have reached an agreement in principal resolving various matters concerning Texaco s operations in the Midway Sunset and Kern River oil fields. Mr. Haber states that the agreement in principal addresses the specific concerns USEPA stated in its letter of January 11, 2000, and at the Commission s evidentiary hearing on January 13, 2000. As long as we are able to reach an agreement with Texaco on the terms of a consent decree that reflects the agreement in principal, EPA does not intend to further question the District s DOC issued to Sunrise.

[47] The Commission takes official notice of the USEPA letter pursuant to our regulations (Cal. Code of Regs., tit. 20,/1213) and California Evidence Code section 451.

In the letter, Mr. Haber adds that the two parties are committed to creating an enforceable consent decree as soon as possible. The final, binding settlement is subject to approval by appropriate officials of the USEPA, the US Department of Justice, and to public notice and comment before entry by the federal District Court.

In our view, the agreement in principal identified in the USEPA letter of March 31, 2000, is a good indication that the USEPA objections to the Sunrise FDOC will likely be removed. However, prior to the Commission s final Decision approving the Sunrise project, Applicant must submit a copy of a signed agreement which reflects the agreement in principal between Texaco and USEPA.[48]

[48] While a copy of a consent decree appears to be the best evidence that USEPA objections to the Sunrise FDOC have been resolved, the parties may wish to comment on alternative resolutions of the matter in their comments upon this Presiding Member s Proposed Decision.

FINDINGS AND CONCLUSIONS

Based upon the evidence of record, we find and conclude as follows:

1. The Sunrise Cogeneration and Power Project is located in the San Joaquin Valley Air Basin, within the jurisdiction of the San Joaquin Valley Unified Air Pollution Control District (SJVAPCD).

2. The project area is in unclassified/attainment status for applicable federal CO and NO_2 air quality standards, in attainment for the state s CO, NO_2, SO_2, SO_4, and lead standards, and in attainment for federal SO_2 standard. It is designated as non-attainment for both state and federal ozone and PM_{10} standards.

3. Construction and operation of the Sunrise Cogeneration and Power Project will result in emission of criteria pollutants.

4. Operation of the project will result in emissions of NO_x, SO_2, PM_{10}, and VOC which would, if not mitigated, contribute to violations of air quality standards.

5. The Sunrise Cogeneration and Power Project will use Best Available Control Technology as determined by the San Joaquin Valley Unified Air Pollution Control District to control emissions of NO_x, CO, SO_2, PM_{10}, and VOC.

6. SJVAPCD released its Final Determination of Compliance (FDOC) for the Sunrise project on November 24, 1999. The conditions contained in the FDOC are incorporated into the Conditions of Certification below.

7. A representative of the SJVUAPCD has certified that complete emissions offsets for the project have been identified and obtained by the Applicant.

8. The United States Environmental Protection Agency informed the Commission on January 13, 2000 that the Final Determination of Compliance issued by the San Joaquin Valley Unified Air Pollution Control District does not comply with federal law and is not valid.

9. The United State Environmental Protection Agency informed the Commission by letter of March 31, 2000, that USEPA will not further question the Determination of Compliance issued by the SJVUAPCD if Texaco and USEPA are able to enter a formal consent decree which

reflects the terms of an existing agreement in principal resolving the USEPA objections.

10. Evidence of a formal consent decree as described in Finding 7 above, is necessary for the Commission to find that the Sunrise Determination of Compliance complies with federal law and is valid.

11. The Applicant has obtained, by direct transfers or legally enforceable option contracts, Emission Reduction Credits sufficient to fully offset the project s increased emissions of NO_x, SO_2, VOC, and PM_{10}, due to project operation, on an annual and a daily basis.

12. To offset PM_{10} emissions during construction, Applicant shall, to the extent feasible, install oxidizing soot filters on large construction equipment.

13. Condition **AQ-2** requires the Sunrise project to install an oxidation catalyst on the power plant to control project emissions of CO, VOC, and NO_x.

14. The Sunrise Cogeneration and Power Project, with the implementation of the measures contained in the Conditions of Certification below, will not, either alone or in combination with other identified projects in the area, cause or contribute to any new or existing violations of applicable ambient air quality standards.

15. With the implementation of the Conditions of Certification specified below, the Sunrise Cogeneration and Power Project will be constructed and operated in compliance with all applicable laws, ordinances, regulations, and standards identified in the pertinent portion of Appendix A of this Decision.

We therefore conclude that with the implementation of the Conditions of Certification below, the Sunrise Cogeneration and Power Project will not create any significant direct, indirect, or cumulative adverse air quality impacts and will conform with all applicable laws, ordinances, regulations, and standards relating to air quality as set forth in the pertinent portions of APPENDIX A of this Decision.

CONDITIONS OF CERTIFICATION

AQ-C1 Prior to the commencement of project construction, the project owner shall prepare a Construction Fugitive Dust Mitigation Plan that will specifically identify fugitive dust mitigation measures that will be employed for the construction of the Sunrise project.

a) The Construction Fugitive Dust Mitigation Plan shall specifically identify measures to limit fugitive dust emissions from construction of the project site. Measures that should be addressed include the following:

- The identification of the employee parking area(s) and surface of the parking area(s);
- The frequency of watering of unpaved roads and disturbed areas;
- The application of chemical dust suppressants;
- The stabilization of storage piles and disturbed areas;
- The use of gravel in high traffic areas;
- The use of paved access aprons;
- The use of posted speed limit signs;
- The use of wheel washing areas prior to large trucks leaving the project site; and,
- The methods that will be used to clean tracked-out mud and dirt from the project site onto public roads.

b) The following measures should be addressed for the transportation of the borrow fill material to the Sunrise project if any borrow is transported from offsite: the use of covers on the vehicles, the wetting of the material and insuring appropriate freeboard of material in the vehicles.

Verification: Sixty (60) days prior to the start of construction, the project owner shall provide the CPM with a copy of the Construction Fugitive Dust Mitigation Plan for approval.

AQ-C2 The project owner shall require as a condition of its construction contracts that its contractors/subcontractors ensure that all off-road construction equipment greater than 100 hp and projected to operate at least 1,000 hours during project construction, use CARB-certified oxidizing soot filters where feasible. Where oxidizing soot filters are determined to be infeasible (based on vendor recommendations and CPM concurrence), CARB-certified oxidation catalysts shall be used instead.

Verification: The project owner shall submit to the CPM, via the Monthly Compliance Report, documentation which demonstrates that the contractor s/subcontractor s heavy earthmoving equipment is properly maintained and that the engines are tuned to the manufacturer s specifications. The project

owner shall submit, via the Monthly Compliance Report, documentation which demonstrates that the contractors/subcontractors have acquired and installed oxidizing-soot-filters (or, if infeasible, oxidation catalysts) for all construction equipment greater than 100 hp and projected to operate at least 1,000 hours of the period of project construction. The project owner shall maintain construction contracts on the site for six months following the start of commercial operation.

SJVUAPCD Permit No. S-3492-1-0: 165 MW NOMINALLY RATED COGENERATION SYSTEM #1 INCLUDING GENERAL ELECTRIC FRAME 7FA, NATURAL GAS-FIRED COMBUSTION TURBINE GENERATOR W/ DRY LOW-NO_X COMBUSTORS, UNFIRED HEAT RECOVERY STEAM GENERATOR (HRSG), SELECTIVE CATALYTIC REDUCTION, AND OXIDATION CATALYST.

SJVUAPCD Permit No. S-3492-2-0: 165 MW NOMINALLY RATED COGENERATION SYSTEM #2 INCLUDING GENERAL ELECTRIC FRAME 7FA, NATURAL GAS-FIRED COMBUSTION TURBINE GENERATOR W/ DRY LOW-NO_XCOMBUSTORS, UNFIRED HEAT RECOVERY STEAM GENERATOR (HRSG), SELECTIVE CATALYTIC REDUCTION, AND OXIDATION CATALYST.

AQ-1 No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

Verification: The project owner shall make the site available for inspection by representatives of the District, California Air Resources Board (CARB) and the Commission.

AQ-2 The project owner shall submit selective catalytic reduction, oxidation catalyst, and continuous emission monitor design details to the District at least 30 days prior to commencement of construction. [District Rule 2201]

Verification: The project owner shall provide copies of the design drawings of the catalyst system chosen and the continuous emission monitor design detail to the CPM and the District at least 30 days prior to commencement of construction.

AQ-3 This Condition of Certification and the accompanying Verification became unnecessary once the project owner announced its intention to install oxidation catalyst. Therefore, the Condition was deleted.

AQ-4 Heat recovery steam generator (HRSG) design shall provide space for oxidation catalyst and additional selective catalytic reduction catalyst as needed to meet CO, VOC, and NO_x emission limits. [District Rule 2201]

Verification: The project owner shall provide copies of the design drawings of the HRSG to the CPM and the District at least 30 days prior to commencement of construction.

AQ-5 Combustion turbine generator (CTG) and electric generator lube oil vents shall be equipped with mist eliminators. Visible emissions from lube oil vents shall not exceed 5% opacity, except for three minutes in any hour. [District Rule 2201]

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ-6 The CTG shall be equipped with continuously recording fuel gas flowmeter. [District Rule 2201]

Verification: The information above shall be included in the quarterly reports of Condition **AQ-31**.

AQ-7 CTG exhaust shall be equipped with continuously recording emissions monitor(s) dedicated to this unit for NO_x (before and after the SCR unit), CO, and O_2. Continuous emissions monitor(s) shall meet the requirements of 40 CFR part 60, Appendices B and F, and 40 CFR part 75, and shall be capable of monitoring emissions during normal operating conditions and during startups and shutdowns, provided the CEM(s) pass the relative accuracy requirement specified in condition **AQ-23**. If relative accuracy of CEM(s) cannot be demonstrated during startup conditions, CEM results during startup and shutdown events shall be replaced with startup emission rates obtained from source testing to determine compliance with emission limits in Conditions **AQ-14, -15, -16**, and **-17**. [District Rule 2201]

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ-8 Exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods. [District Rule 1081]

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ-9 CTG shall be fired exclusively on natural gas, consisting primarily of methane and ethane, with a sulfur content no greater than 0.75 grains of sulfur compounds (as S) per 100 dry standard cubic feet of natural gas. [District Rule 2201]

Verification: Please refer to Condition **AQ-30**.

AQ-10 Startup is defined as the period beginning with turbine initial firing until the unit meets the lbs/hr and ppmv emission limits in Condition **AQ-15**. Shutdown is defined as the period beginning with initiation of turbine shutdown

sequence and ending with cessation of firing of the gas turbine engine. Startup and shutdown durations shall not exceed one hour per occurrence. [District Rule 2201 and 4001]

Verification: Please refer to Condition **AQ-31**.

AQ-11 Ammonia shall be injected when the selective catalytic reduction system catalyst temperature exceeds 500¡F. The project owner shall monitor and record catalyst temperature at all times including periods of startup. [District Rule 2201]

Verification: The project owner shall record the SCR temperatures and the commencement of ammonia injection times in the daily logs required under Condition **AQ-31**.

AQ-12 The project owner shall monitor and record exhaust gas temperatures at selective catalytic reduction system intake and oxidation catalyst outlet. [District Rule 2201]

Verification: The project owner shall record the exhaust gas temperature at the SCR system intake and oxidation catalyst outlet in the daily logs required under Condition **AQ-31**.

AQ-13 Ammonia injection system shall be equipped with operational ammonia flowmeter and injection pressure indicator. [District Rule 2201]

Verification: The project owner shall record the flow of ammonia and the injection pressures in the daily logs required under Condition **AQ-31**.

AQ-14 During startup or shutdown of any combustion turbine generator(s), combined emissions from the two CTGs (S-3492-1 and -2) shall not exceed the following: NO_x— 112.5 lbs and CO — 513.1 lbs in any one-hour. [CEQA]

Verification: The project owner shall provide records of the emissions as part of the quarterly reports of Condition **AQ-31**.

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AQ-15 Emission rates from each gas turbine engine heat recovery steam generator exhaust except during startup and/or shutdown, shall not exceed the following:

PM_{10}:	9.0 lbs/hr
SO_x (as SO_2):	3.5 lbs/hr
NO_x (as NO_2):	16.5 lbs/hr and 2.5 ppmvd @ 15% O_2 Averaged over 1-hour
VOC:	2.8 lbs/hr and 1.2 ppmvd @ 15% O_2 averaged Over 3-hours
CO:	24.1 lbs/hr and 6 ppmvd @ 15% O_2 averaged over 3-hours
Ammonia:	10 ppmvd @ 15% O_2 averaged over 24-hours

[District Rules 2201, 4001, and 4703]

Protocol: Each one-hour period in a one-hour rolling average will commence on the hour. Each one-hour period in a 3-hour rolling average will commence on the hour. The 3-hour average will be compiled from the three most recent 1-hour periods. Each one-hour period in a 24-hour average for ammonia slip will commence on the hour. The 24-hour average will be calculated starting and ending at twelve-midnight. [District Rule 2201]

Verification: The project owner shall provide records of the emissions as part of the quarterly reports of Condition **AQ-31**.

AQ-16 Emission rates from each CTG heat recovery steam generator exhaust, on days when a startup or shutdown occurs, shall not exceed the following:

PM_{10}:	220.0	lbs/day
So_x(as SO_2):	83.7	lbs/day
NO_x(as NO_2):	421.5	lbs/day
VOC:	83.5	lbs/day
CO:	733.6	lbs/day

[District Rule 2201]

Protocol: Daily emissions will be compiled for a 24-hour period starting and ending at twelve-midnight. [District Rule 2201]

Verification: The project owner shall provide records of the emissions as part of the quarterly reports of Condition **AQ-31**.

AQ-17 Annual emissions from the CTG calculated on a twelve consecutive month rolling basis shall not exceed the following:

PM_{10}:	79,000	lbs/year
SO_x(as SO_2):	28,540	lbs/year
NO_x(as NO_2):	135,708	lbs/year
VOC:	23,570	lbs/year
CO:	203,486	lbs/year

[District Rule 2201]

Protocol: Each calendar month in a twelve consecutive month rolling emissions total will commence at the beginning of the first day of the month. The twelve consecutive month rolling emissions total to determine compliance with annual emission limits will be compiled from the twelve most recent calendar months. [District Rule 2201]

Verification: The project owner shall provide records of the emissions as part of the quarterly reports of Condition **AQ-31**.

AQ-18 Upon implementation of S-3492-1-0 and '2-0, emission offsets certificates shall be provided for all calendar quarters in the following amounts, at the offset ratio specified in Rule 2201 (6/15/95 version) in the following table at least 30 days prior to the commencement of construction.

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
PM_{10}	44,224	44,715	45,207	45,207
SO_x(as SO_2)	14,075	14,231	14,387	14,387
NO_x(as NO_2)	66,924	67,668	68,411	68,411
VOC	11,624	11,753	11,882	11,882

[District Rule 2201]

Verification: The project owner shall provide copies of all the necessary ERC certificates to the CPM no later than 30 days prior to the commencement of construction.

AQ-19 At least 30 days prior to commencement of construction, the project owner shall provide the District, with written documentation that all necessary offsets have been acquired or that binding contracts to secure such offsets have been entered into. [District Rule 2201]

Verification: The project owner shall provide copies of all the necessary ERC certificates to the CPM no later than 30 days prior to the commencement of construction.

AQ-20 Source testing to demonstrate compliance with the NOx, CO, and VOC short-term emission limits (lbs/hr and ppmv @ 15% O_2) shall be conducted within 60 days of initial operation of CTG and annually thereafter by District witnessed sampling of exhaust gas by qualified independent source testers. Sample collection to demonstrate compliance with ammonia emission limit shall be based on three consecutive test runs of thirty minutes each. [District Rule 1081]

Verification: Please refer to the information requirements of Condition **AQ-25**.

AQ-21 Compliance with ammonia slip limit shall be demonstrated by using the following calculation procedure:

As = (((a-(b x c/1,000,000)) x 1,000,000 / b) x d)

Where:

As = Ammonia slip (ppmv @ 15% O_2)

a = ammonia injection rate (lbs/hr)/(17 lbs/lbs-mol)

b = dry exhaust gas flow rate (lbs/hr)/(29 lbs/lbs-mol)

c = change in measured NO_x concentration (ppmv @ 15% O_2) across catalyst, and

d = correction factor. The correction factor shall be derived annually during compliance testing by comparing the measured and calculated ammonia slip. [District Rule 4102]

Verification: The project owner shall provide records of the emissions as part of the quarterly reports of Condition **AQ-31**.

AQ-22 Source testing to demonstrate compliance with PM_{10} short-term emission limit (lbs/hr) shall be conducted within 60 days of initial operation, again within 9 months of initial operation during the winter (December, January, or February), and annually thereafter by District witnessed sampling of exhaust gas by qualified independent source testers. [District Rule 1081]

Verification: Please refer to the information requirements of Condition **AQ-25**.

AQ-23 Source testing of startup NOx, CO, VOC, and PM_{10} mass emission rates shall be conducted for one of the gas turbine engines (S-3492-1-0 or -2-0) upon initial operation and at least once every seven years thereafter by District witnessed in-situ sampling of exhaust gases by a qualified independent source test firm. CEM relative accuracy shall be determined during startup source testing in accordance with 40 CFR 60, Appendix B. [District Rule 1081]

Verification: Please refer to the information requirements of Condition **AQ-25**.

AQ-24 Compliance with natural gas sulfur content limit shall be demonstrated within 60 days of operation of each gas turbine engine and periodically as required by 40 CFR 60 Subpart GG and 40 CFR 75. [District Rules 1081, 2540, and 4001]

Please refer to the information requirements of Condition **AQ-30**.

AQ-25 The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. Official test results and field data collected by source tests required by conditions on this permit shall be submitted to the District within 60 days of testing. [District Rule 1081]

Verification: The project owner shall notify the CPM and the District 30 days prior to any compliance source test. The Project owner shall provide a source test plan to the CPM and District for the CPM and District approval 15 days prior to testing. The results and field data collected by the source tests shall be submitted to the CPM and the District within 60 days of testing.

AQ-26 The source test plans for the initial and seven-year source test shall include a method for measuring the CO/VOC surrogate relationship that will be used to demonstrate compliance with VOC lbs/hr, lbs/day, and lbs/twelve month rolling average emission limits. [District Rule 2201]

Verification: The Project owner shall provide a source test plan to the CPM and District for the CPM and District approval 15 days prior to testing.

AQ-27 The following test methods shall be used:

PM_{10}:	EPA method 5 (front half and back half),
NO_x:	EPA method 7E or 20
CO:	EPA method 10 or 10B
O_2:	EPA method 3, 3A, or 20
VOC:	EPA method 18 or 25
Ammonia:	BAAQMD ST-1B
Fuel gas sulfur content:	ASTM D3246.

EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081, 4001, and 4703]

Verification: As part of the test plan to be submitted under Condition **AQ-25**, the project owner shall identify the test methods to be used in the annual compliance source testing.

AQ-28 The project owner shall notify the District of a), the date of initiation of construction no later than 30 days after such date, b) the date of anticipated startup not more than 60 days nor less than 30 days prior to such date, and c), the date of actual startup within 15 days after such date. [District Rule 4001]

Verification: The project owner shall notify the CPM and the District of the date of initiation of construction no later than 30 days after such date. The project owner shall notify the CPM and the District of the date of anticipated startup not more than 60 days nor less than 30 days prior to such date, and the date of actual startup within 15 days after such date.

AQ-29 The project owner shall maintain hourly records of NO_x, CO, and ammonia emission concentrations (ppmv @ 15% O_2), and hourly, daily, and annual records of NO_x and CO emissions. Compliance with the hourly, daily, and annual VOC emission limits shall be demonstrated by the CO CEM data and the CO/VOC relationship determined by annual CO and VOC source tests. [District Rule 2201]

Verification: The project owner shall provide records of the emissions as part of the quarterly reports of Condition **AQ-31**.

AQ-30 The project owner shall maintain records of SO_x lbs/hr, lbs/day, and lbs/twelve month rolling average emissions. SO_x emissions shall be based on fuel use records, natural gas sulfur content, and mass balance calculations. [District Rule 2201]

Verification: The project owner shall provide records of the information described above as part of the quarterly reports of Condition **AQ-31**.

AQ-31 The project owner shall maintain the following records for each CTG: occurrence, duration, and type of any startup, shutdown, or malfunction; emission measurements; total daily and annual hours of operation; and hourly quantity of fuel used. [District Rules 2201 and 4703]

Verification: The project owner shall compile required data and copies of the daily logs and submit the information to the CPM in quarterly reports submitted no later than 60 days after the end of each calendar quarter.

AQ-32 The project owner shall maintain the following records for the continuous emissions monitoring system (CEMS): performance testing, evaluations, calibrations, checks, maintenance, adjustments, and any period of non-operation of any continuous emissions monitor. [District Rules 2201 and 4703]

Verification: The project owner shall compile the required data in the formats discussed above and submit the results to the CPM as part of the quarterly reports of Condition **AQ-31**.

AQ-33 All records required to be maintained by this permit shall be maintained for a period of five years and shall be made readily available for District inspection upon request. [District Rule 2201]

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ-34 Results of continuous emissions monitoring shall be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.3.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080]

Verification: The project owner shall compile the required data in the formats discussed above and submit the results to the CPM as part of the quarterly reports of Condition **AQ-31**.

AQ-35 The project owner shall notify the District of any breakdown condition as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District s satisfaction that the longer reporting period was necessary. [District Rule 1100]

Verification: The project owner shall comply with the notification requirements of the District and submit written copies of these notification reports to the CPM as part of the quarterly reports of Condition **AQ-31**.

AQ-36 The District shall be notified in writing within ten days following the correction of any breakdown condition. The breakdown notification shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the methods utilized to restore normal operations. [District Rule 1100]

Verification: The project owner shall comply with the notification requirements of the District and submit written copies of these notification reports to the CPM as part of the quarterly reports of Condition **AQ-31.**

AQ-37 and its **Verification** is deleted. It duplicates **AQ-35**.

Verification: The project owner shall comply with the notification requirements of the District and submit written copies of these notification reports to the CPM as part of the quarterly reports of Condition **AQ-31.**

AQ-38 Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080]

Verification: The project owner shall submit the continuous emission monitor audit results with the quarterly reports required of Condition **AQ-40**.

AQ-39 The project owner shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F. [District Rule 1080]

Verification: The project owner shall submit the continuous emission monitor results with the quarterly reports of Condition **AQ-40**.

AQ-40 The project owners shall submit a written report to the APCO for each calendar quarter, within 30 days of the end of the quarter, including: time intervals, data and magnitude of excess emissions; nature and cause of excess (averaging period used for data reporting shall correspond to the averaging period for each respective emission standard); corrective actions taken and preventive measures adopted; applicable time and date of each period during a CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; and a negative declaration when no excess emissions occurred. [District Rule 1080]

Verification: The project owner shall compile the required data and submit the quarterly reports to the CPM and the APCO within 30 days of the end of the quarter.

B. PUBLIC HEALTH

Analysis under this topic area supplements the analysis performed under the Air Quality discussion above. This section focuses on exposure to pollutants for which no air quality standards have been established (noncriteria pollutants). The purpose of the public health analysis is to assess whether a significant health risk would result from exposure to the airborne emissions of noncriteria pollutants.

SUMMARY OF THE EVIDENCE

The evidence is undisputed that construction and operation of the Sunrise Cogeneration and Power Project may result in the release of toxic air contaminants. (Ex. 75, p. 1; Ex. 77, p. 1; 1/11/000 RT 139.) However, disputes arose among the parties concerning the amount of the emissions and whether the incremental contribution of pollutants produced by the project would create a significant risk to public health. Witnesses for both Applicant and Staff agreed that, assuming the Sunrise project implements the mitigation proposed in the Staff FSA, the project will pose no significant direct, indirect, or cumulative impact upon the public health. (1/11/00 RT 139-141, 188; Ex. 75, p. 17.) CURE disagrees, asserting that the project will create significant public health impacts due to construction equipment exhaust, the drilling of 700 new wells, and the operation of those oil production wells which are supplied steam from the Sunrise plant.[49] As a result, CURE argues that mitigation for these impacts should include: 1) the installation of oxidation catalysts on major diesel engines drilling new wells; 2) the installation of an oxidation catalyst on other major oil field support engines; and, 3) the use of a vapor recovery system for all new and existing wells and support tanks and other facilities within a _-mile radius of the Sunrise plant. (Ex. 77, pp. 21-22.)

[49] Originally, CURE also argued that combustion of natural gas in the plant turbines would create significant public health impacts. (Ex. 78, p. 1.) However, Applicant s announcement that it would use a CO oxidation catalyst on the plant s turbines apparently satisfied CURE s concerns regarding turbine exhaust emissions. (1/28/00 RT 99; CURE Group B Opening Brief, p. 13.)

The parties did agree that, based on modeling, the maximum point of impact from construction and operation of the Sunrise project is within the Midway Sunset oilfield. (Ex. 75, p. 2; 1/11/00 RT 159.) However, one matter in issue is whether the people at or near the maximum point of impact should be protected as workers or as members of the general public.

1. Scope of the Public Health Analysis

Much of the dispute regarding the public health impacts of the Sunrise project revolve around the standard which is applied when evaluating the impacts of project emissions on the general public. Applicant and Staff agree that public health criteria of Reference Exposure Levels (RELs) set by the Office of Environmental Health Hazard Assessment (OEHHA) and the approach set out in guidelines from the California Air Pollution Control Officers Association (CAPCOA)[50] are not appropriate for evaluating the risk to oil field workers from project emissions. (1/11/00 RT 143-144, 180-182.) CURE focused on language in the CAPCOA guidelines, which equates all offsite workers with members of the public. As a result, CURE sought to apply these public health standards to an evaluation of project impacts on oil field workers adjacent to the Sunrise project.

Sunrise introduced the testimony of David Stein who summarized the Applicant s evaluation of public health impacts. Mr. Stein pointed out his disagreement with CURE s application of the CAPCOA guidelines to the CEC siting process. These guidelines, he stated, were specifically prepared to provide uniformity in the preparation of health risk assessments (HRAs) under the AB 2588 air toxics program and were not intended for use in the CEC siting process. He added that the Sunrise project will be subject to further emissions analysis after it commences operation. At that time the project will: 1) inventory actual; rather

[50] California Air Pollution Control Officers Association (CAPCOA) and others, Air Toxics Hot Spots Program Revised 1992 Risk Assessment Guidelines, October 1992.

than calculated, emissions; 2) perform a health risk assessment if necessary; and, 3) reduce any risks considered excessive. (1/11/00 RT 142-143.)

Mr. Stein also disagreed with CURE s application of RELs to oil field workers, noting that the general public is excluded from the oil fields, and that oil field workers are protected by stringent Cal-OSHA industrial safety standards, including exposure limits for potentially toxic chemicals. Existing regulations require that oil field workers be advised of potential health risks, be provided appropriate training, be given protective equipment and monitoring of the work environment to ensure that standards are met. He concluded that when the direct and indirect effects of the Sunrise project in the Midway-Sunset oil field are compared to appropriate workplace standards, the impacts are well below the standards and therefore insignificant. (1/11/00 RT 143-144.)

The Commission staff s public health testimony explained how its experts assess the public health impacts of a project. Staff performs a health risk assessment that: 1) identifies each pollutant and its health effects; 2) assesses the dose-response relationship to determine the probability of effects from the exposure; 3) assesses the extent of the exposure using modeling for all possible pathways; and, 4) characterizes the nature and magnitude of the risk. Staff completes an HRA for both carcinogenic and non-carcinogenic pollutants. (Ex. 75, p. 3.)

In contrast to the public health approach, when Staff evaluates worker safety, it determines whether any unusual circumstances will hinder the ability of the project applicant to comply with the Cal-OSHA regulations adopted to protect workers. (Ex. 32, p. 5.) Like Sunrise, Staff disagrees with CURE s extension of a public health standard to those people Staff believes are subject to worker safety standards. (Ex. 76.) In order to determine which offsite workers should be included in the public health analysis, (rather than in the worker safety analysis) Staff examines the nature of the work performed by the workers in question. Staff believes that workers who are engaged in essentially the same industrial

operation as that of the power plant should be considered workers for the purposes of the worker safety analysis. Staff considers off site workers engaged in unrelated industries as members of the general public. Therefore, Staff analyzes project impacts, which could effect this latter group, by applying public health standards. (1/11/00 189-190.) On the other hand, the Staff s worker safety analysis for the Sunrise project includes the workers at the Sunrise project who produce steam that is used in the adjacent oil field operations. It also includes workers in the adjacent oil field who are employed by Texaco California, Inc., which purchases the steam produced by Sunrise and uses it for enhancing oil recovery from the oil field.

Staff witness Rick Tyler distinguished the Staff practice of differentiating offsite workers subject to the worker safety standards from those who have been analyzed under public health standards. He offered the example of the Proctor & Gamble AFC[51] where Staff analyzed warehouse workers across the street from the power plant as members of the general public since they were engaged in work not related to power plant operations.[52] (1/11/00 RT 189-190.)

Mr. Tyler also explained the differences between workers and members of the general public. Workers tend to be a healthier, more robust population which is exposed to potential emissions over the assumed 40-hour workweek, rather than constantly. He noted that workers get paid to do their job and in return accept certain risks associated with the job. Furthermore, the employer is able to make available and even impose mitigation measures such as protective equipment and training and has a duty to inform employees of job-related risks. In the case of the Sunrise project, these risks are similar to the industrial operations carried out by workers in the adjacent oil filed. (1/11/00 RT 177-183.)

[51] Docket No. 93-AFC-2.

[52] The witness noted that for virtually every cogeneration project, offsite workers are present at the steam host, adjacent to the plant generating power and steam.

The Staff witness also pointed out that, by contrast, members of the general public receive little or no benefit associated with toxic emissions, have no opportunity to grant or deny their consent to receiving the emissions, and include sensitive populations such as infants and the elderly. As a result, public health standards include safety margins, which are as much as one thousand times the REL. (1/11/00 RT 179.)

CURE argued that applicable requirements for public health analyses should be applied not only to members of the public, but also to all off-site workers, including those in the oil field adjacent to the project. (Ex. 78, pp. 2-9.) CURE urges that workers subject to occupational standards should only be those employees of the Sunrise project within the power plant boundary, while those across the boundary should be considered members of the general public. (Ex. 78, p. 2.) CURE s witness Dr. Phyllis Fox advocated the application of CAPCOA guidelines and the RELs issued by OEHHA for all offsite workers. She testified that when these standards are applied to workers in the Midway Sunset oil field, emissions from the Sunrise project impose a significant impact on those workers. Over objection from both Applicant and Staff, CURE was allowed to put in evidence a message from Dr. Melanie Marty, the Chief of OEHHA s Air Toxicology and Epidemiology Section. Dr. Marty stated that occupational workplace standards are inappropriate for assessing the public health impacts of a facility s emissions on either offsite workers or residents. (Ex. 78.)

2. Acrolein

Health risk assessments (HRA s) were prepared by both Staff and CURE to evaluate public health impacts from the Sunrise project. Staff s HRA concluded that the cancer risk at the area of maximum impact was $3x10^{-7}$ and that the combined acute and chronic non-cancer risk from plant operation was .54, well below the significance level of 1.0 used by Staff to assess public health impacts. (Ex. 75, p. 12.) CURE presented six sets of HRA results to address non-cancer

impacts from numerous areas of project-related functions.[53] CURE found that each resulting non-cancer hazard index was in excess of the 1.0 significance level. Four of the results are attributable to the emission rate CURE used for acrolein while the other two HRAs were driven by the risk associated with H_2S.

Acrolein is the most toxic compound emitted by the combustion sources at the Sunrise project and it is toxic at relatively low levels. It is also found in tobacco smoke and vehicular emissions. Acrolein has not been established as a human carcinogen, and thus its hazards are assessed as noncancer effects. (Ex. 75, p. 7.) Applicant and Staff estimated toxic emissions from the project using emission factors from the California Air Resources Board s (CARB s), California Air Toxic Emission Factors (CATEF) database.[54] CURE started with the CATEF emission factor and then increased it by a factor of ten in order to account for what CURE characterized as a substantial underestimation of acrolein due to a 93 percent loss of the compound from samples held for 48 hours before being analyzed. (Ex. 56, Att. 1, pp. 50-51; Ex. 77, pp. 9-10.)

CURE argues that the ten-fold increase for acrolein is justified based on a paper presented in 1993 by Dr. Robert Freeman, Technical Director of Air Toxics Ltd. and other sources. [55] (Ex. 77, p. 9.) Both Dr. Phyllis Fox and Dr. Eric Winegar, as witnesses for CURE testified that acrolein samples degraded rapidly during the time between sampling and testing. (1/11/00 RT 263.) Dr. Fox testified that she is the one who notified CARB of the acrolein problem, though she acknowledged that CARB has not yet taken any official action to change the acrolein emission factors. Dr. Fox testified that she is working with CARB and

[53] The six sets include: 1) acute power plant construction impacts; 2) acute well drilling construction impacts; 3) acute power plant operation impacts; 4) acute well operation impacts; 5) chronic power plant operation impacts; and, 6) chronic well operation impacts.

[54] This database compiles emission factors measured in sources tests carried out for the Air Toxics Hot Spots Act (AB 2588).

[55] For documentation of acrolein degradation in samples, Dr. Fox also cited EPA reports (1/11/00 RT 264), EPA reference method for measuring aldehydes using DNPH procedure, TO-11A. (1/11/00 RT 265-266.)

anticipates that they will soon be taking action. I m hoping they will be. (1/13/00 RT pp. 191-193, 240.)

Applicant s witness David Stein testified that the database and test method, which CARB currently makes available to the public, contains no direction that acrolein levels should be multiplied by a factor of ten. (1/11/00 RT 145.)

While Commission staff acknowledges that there is some merit to CURE s concern over the test method used by CARB for acrolein measurements, Staff believes that CURE s ten-fold increase is arbitrary, is based on limited peer review, and has not been recognized by any regulatory agency despite the fact that six years have passed since Dr. Freeman s paper was presented. CARB has not changed the acrolein emission factor.

Staff argues that CURE also failed to substantiate its claim that the acrolein emission factor must be increased because of the period of time which elapsed between sample collection and analysis. Staff witness Tyler testified that he had experience conducting similar analysis at CARB and that typically the analysis of samples was not delayed, especially when degradation was a concern. (1/11/00 RT 197.)

3. H_2S Emissions

H_2S is a criterion pollutant which will form a portion of the volatile organic compounds (VOC) emissions that will be created by the 700 new wells served by the project. Little information exists about current levels of H_2S in the San Joaquin Valley and attainment status for the compound is unclassified. (Ex. 54, p. 25.) Staff did not consider expected emissions from well operation to pose a significant health hazard since such operations are subject to Air District rules that minimize well emissions. Thus, Staff did not propose Conditions of Certification to further minimize H_2S impacts.

In its testimony, Staff disagreed with CURE s approach, faulting its application of the more stringent public health standard to nearby workers. (Ex. 75, p. 15.) Staff also notes the highly variable levels of H_2S from day to day in the oil field, making it difficult to accurately estimate an emission factor for the compound. In addition, Staff stated that CURE failed to apply the proper Air District emission control factors of 99.9 percent for vapor recovery systems. (Ex. 54, p. 25.) Furthermore, both Applicant and Staff testified that the measurements taken by CURE to establish a background level of H_2S are seriously flawed. (1/28/00 pp. 163-164; 1/11/00, p. 194-196.)

CURE disagrees with Staff s conclusion, believing that the project s H_2S emissions are significant and calling for mitigation measures. CURE defends its sampling method and contends that all of its test sources and analytical data refute Staff s unsupported assertion that toxic pollutants are not present at the site and need not be included in background calculations. (Ex. 77, Table 1, Att. 11, Att. 12.) CURE argues that H_2S emissions can be calculated using variable results and that the record does not support applying an assumption of 99.9 percent vapor recovery in the oil field. (Ex. 56, Att. 1, pp. 24-28.) CURE defends the accuracy of its measurement methods as acceptable to CARB and used at Avila Beach clean up efforts. (1/13/00 RT 12.) CURE also defended its use and calibration of the Jerome instrument used to take background air samples. (1/10/00 RT 259-271.)

CURE concludes that the project will have significant public health impacts from turbine startup, construction equipment exhaust, drilling and operating new wells. As a result, CURE proposes mitigation measures which require the use of oxidizing soot filters on construction equipment, oxidation catalysts on drill rigs and vapor recovery controls on wells and tanks within the _-mile radius of the project. (CURE Group B Reply Brief, p. 15.)

4. Further Disputes

CURE challenged other aspects of Staff s public health analysis as well, arguing that criteria pollutant concentrations should be considered in evaluating the public health impacts of the project. Staff disagrees and argues that two health indices should not be added together to derive the total hazard index, since doing so will lead to overly conservative results. Furthermore, Staff points out in its brief that even without adding criteria hazard indices, the REL for eye irritation, for example, includes a safety factor of 60. (1/11/00 RT 246.) This means that the actual level at which effects are observed was divided by 60 to derive the REL.[56] (Ex. 77, Att. 3, pp. C-2-Acrolein.)

CURE also criticized Staff for not including background concentrations in its HRA, and cited source testing CURE carried out to argue the possible existence of significant background levels of toxic pollutants. (Ex. 77. p. 13.) Staff, on the other hand, testified that it did not expect relevant pollutants to be found at significant background levels. (Ex. 75, p. 11.) Staff also challenged the reliability of CURE s background measurements as being too limited to support a conclusion that background concentrations of toxic contaminants should be included in Staff s HRA.

COMMISSION DISCUSSION

The record is clear that the point of maximum impact for emissions from the Sunrise project is in the Midway Sunset oil field, an industrial environment from which the general public is excluded. However, CURE contends that workers in the oil field must be considered offsite workers who are protected by the same standards as those which protect the general public. The Commission must disagree.

[56] Commission Staff Opening Group B Brief, February 3, 2000, p. 9.

Public health standards are designed to protect a broad population, which includes sensitive individuals such as infants and the elderly. These people have no relationship with the emitting project and are assumed to be at risk of exposure 24-hours a day for a seventy-year period. Thus, depending upon the completeness of data concerning a pollutant s effect on humans, the public health exposure criteria for a given pollutant could be as much as one thousand times more stringent than the exposure criteria for a worker. (1/11/00 RT 178-181.)

By contrast, workers are assumed to risk exposure only during the workday,[57] subject to the direction of an employer who is required by OSHA regulations to protect its workers. These workers are at the job site by choice and are paid for their work. CURE s efforts to combine standards for offsite workers and the general public may be appropriate where such workers are part of an industrial operation unrelated to the emitting power project.[58] In that case the workers would be unlikely to have knowledge of the risks at the power plant, nor be given protection from the emissions in question.

However, we agree with Staff that to determine which offsite workers should be included in the public health analysis, we must examine the nature of the work that is being carried out as well as the relationship of the power plant to that work. Thus, the definition of worker is not dependent on property line distinctions but rather upon whether the individual workers are engaged in a related industrial operation. (1/11/00 RT 189-190.) Where the work and associated risks are related to those of the power plant, these people should be considered workers for the purposes of Staff s worker safety evaluation. The relationship between the power plant and these workers may be in the similar

[57] Eight hours a day, 40 hours a week, over the 52 weeks of the year for a 30-year exposure. (1/11/00 RT 180.)

[58] Staff witness Tyler cited the example of the Proctor & Gamble AFC where Staff treated warehouse workers across the street from the power plant as members of the general public. (1/11/00 RT 189-190.)

nature of the work, as Staff recommends. With a cogeneration project, such as Sunrise, the similar situation of the on-site and offsite worker may also exist in the necessary linkage of the power plant to its steam host.[59] On the other hand, offsite workers not engaged in work related to the power plant should be considered as members of the general public and impacts affecting them will be addressed in the public health portion of Staff s analysis. (*Ibid.*)

Because the Sunrise project is a cogeneration plant, oil field workers within the _-mile radius of the project are part of the steam host, receiving steam generated by the Sunrise project. Thus, the Sunrise project is itself an integral part of oil field operations, producing steam for oil field injection. In addition, both workers at the power plant and those in the adjacent oil field are located in an industrial oil development area, which is remote from the general public, with controlled access. Both types of workers are engaged in industries using hazardous materials, toxic substances and heavy equipment. In both cases their work environment is subject to strict Cal-OSHA industrial safety regulations which include exposure limits for potentially toxic chemicals. Workers are advised of potential health risks, and provided appropriate training, protective equipment, and monitoring as required by OSHA standards. (1/11/00 RT 143.) In addition, the case before us involves workers in the oil field and at the power plant whose employers, TCI and SCPC, are owned by the same parent company, Texaco, Inc. Thus, there is a common entity, which has responsibilities to workers of both companies.

To support its position, CURE introduced the hearsay statement of Melanie Marty, Ph.D., Chief of the Air Toxicology and Epidemiology Section, at OEHHA, stating that it is inappropriate to apply occupational standards when assessing emission impacts on either offsite workers or residents. However, since CURE did not make Dr. Marty available for cross examination, we are unable to learn

[59] Because of the limited distance live steam can be piped, state law recognizes the necessary proximity of a cogeneration power plant generating steam, to that of the steam host which uses

whether she considers those who work for an affiliated oil company in an adjacent oil field using steam produced by the Sunrise project as offsite workers who should be evaluated the same as residential members of the public.

In our view the approach applied by Staff to define offsite workers provides adequate protection to members of the general public and unaffiliated offsite workers. Workers in the adjacent oil field are conducting work sufficiently related to that of the power project that they are adequately protected by existing OSHA industrial standards.

The risk of project-related emissions of acrolein is not a significant one according to both Applicant and Commission staff. (Ex. 73, testimony of Stein, pp. 7-9; 1/11/00 RT 144-146; 199-200.) CURE, on the other hand, multiplies acrolein emissions by ten and argues that a significant impact will occur. (Ex. 75, pp. 7-9.) The response from Applicant and Staff is that such a multiplier is arbitrary and is not called for or even recommended by CARB emission factors for acrolein. It is not disputed that the current CARB acrolein emission factors are the ones used by Applicant and Staff. Therefore, the project clearly meets current LORS in this regard.

Normally, the fact that a project complies with applicable LORS in a specific topic area would be sufficient for the Commission to presume that the project would not pose a significant threat to the environment. However, as Staff notes in its brief, if there is a significant body of evidence that indicates that a standard or emission factor established by a regulatory agency is seriously flawed, that evidence should be considered by the Energy Commission in evaluating the credibility of testimony that relies on that standard or emission factor. (Staff Group B Opening Brief 2/3/00, p. 7.)

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the steam. [Pub. Resources Code,／25540.6(b).]

In the instant case we observe a number of facts in the testimony, which raise doubts about the accuracy of the emission factors which are currently used for acrolein. It is not disputed that acrolein degrades over time. (Ex. 77, pp. 10 and Att. 1, Ex. 9.) Dr. Fox testified that she reviewed a list of all source tests that were used to develop the acrolein emission factor. (1/11/00 RT 273.) Her analysis revealed that 90 percent of the acrolein in samples degenerated within 48 hours of its collection. Furthermore, her review found that more than 48 hours passed between collection of the sample and its analysis as a source test that went into developing the acrolein emission factor. (Ex. 77, p. 10; 1/11/00 RT 273.) She included in her testimony one of these source tests, which was actually analyzed 8 days after it was collected. (Ex. 77, p. 10.) Dr. Fox also points out that USEPA has recognized the degradation of acrolein and refers to the degradation in its standard test protocol for aldehydes. (1/11/00 RT 265-266; 1/13/00 RT 239.)

We are not persuaded that the apparent errors in acrolein testing justify CURE s recommended ten-fold increase in emission factors. The appropriate adjustment to these factors must be made in the normal course of business by CARB, as the jurisdictional agency. However, we cannot ignore CURE s evidence of significant degradation in acrolein samples over time. This fact has influenced the Commission in evaluating the appropriateness of requiring the use of oxidizing soot filters on construction equipment for the project. That mitigation measure is discussed further in the Air Quality section above.

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FINDINGS AND CONCLUSIONS

Based on the evidence of record and assuming the implementation of the conditions of Certification contained in this Decision, we find and conclude as follows:

1. The primary potential adverse public health impact associated with the Sunrise Cogeneration and Power Project is due to combustion products from burning natural gas.

2. Combustion of natural gas results in the emission of criteria and noncriteria pollutants.

3. As discussed in the Air Quality portion of this Decision, emissions of criteria pollutants will be at levels consistent with those established to protect public health.

4. The accepted method used by state regulatory agencies in assessing the significance for both acute and chronic noncarcinogenic public health effects is known as the hazard index method. A similar method is used for assessing the significance of potential carcinogenic public health effects.

5. Emission of non-criteria pollutants from the Sunrise Cogeneration and Power Project will not cause acute or chronic adverse public effects.

6. Potentially significant cumulative impacts from noncriteria pollutants are localized within relatively short distances from the project source, at a point within the Midway Sunset oil field which is not accessible to the general public.

7. Oil field workers are deemed to be in essentially the same industrial activity as the Sunrise Cogeneration and Power Project for the purposes of assessing the risks of project emissions on public health.

8. The health and safety of workers at both the Sunrise Cogeneration and Power Project and in the adjacent Midway Sunset oil field are protected by industrial safety standards administered by the California Occupational Health and Safety Administration.

9. Operations of the Sunrise Cogeneration and Power Project, in combination with that of the licensed La Paloma and the proposed Elk Hills and Midway Sunset projects, will not cause or contribute significantly to a cumulative adverse public health impact from noncriteria pollutant emissions.

12. The weight of evidence indicates that emissions from the Sunrise Cogeneration and Power Project will not have a significant negative impact on the public health.

We therefore conclude that emissions of noncriteria pollutants from the project will not pose a significant direct, indirect, or cumulative adverse public health risk.

All Conditions of Certification which control project emissions are contained in the section of this Decision entitled Air Quality.

C. HAZARDOUS MATERIALS MANAGEMENT

This analysis considers whether the construction and operation of the Sunrise Cogeneration and Power Project will have a significant impact on public health and safety resulting from the use, handling, or storage of hazardous materials at the facility. Related issues are also addressed in the **Waste Management**, **Worker Safety**, and **Traffic and Transportation** portions of this Decision.

SUMMARY OF THE EVIDENCE

1. Applicant

Applicant presented a panel of experts to introduce testimony on its plans for the use and handling of hazardous materials during construction and operation of the Sunrise project.[60] Mr. Muraoka summarized the panel s testimony. He stated that small quantities of hazardous materials will be used in the construction and operation of the Sunrise project and will be managed in accordance with applicable LORS. Only one hazardous material, anhydrous ammonia, will be used in quantities that exceed the reportable amounts under state and federal laws. The anhydrous ammonia will be used in the selective catalytic reduction system to control emissions of nitrogen oxides. (10/14/99 RT 46.)

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[60] The panel consisted of Don Muraoka, a chemical engineer and Senior Project Manager with Radian International, David Einolf a hazard materials and risk manager from Dames and Moore, and Michael de la Cruz, a chemical engineer from Radian International with experience in ammonia handling systems. (10/14/99 RT 43-45.)

The ammonia storage system will consist of a 5300 gallon tank, which will store up to 4500 gallons of anhydrous ammonia at pressures of 233 pounds per square inch (psi).[61] For safety, the ammonia system will include a vaporizer, continuous tank level monitors, temperature and pressure monitors, alarms, excess flow valves, emergency block valves, ammonia detectors and a concrete secondary containment basin capable of holding 110 percent of the tank contents. (Ibid.) The anhydrous ammonia tank will be designed to meet section 8 of the ASME Boiler and Pressure Vessel Code and in accordance with the design standards for seismic zone 4, which will add to the integrity of the ammonia system design, further reducing the likelihood of an accidental release. (10/12/99 RT 87-88.)

In addition to these engineering steps, measures to reduce the risk of an ammonia release include: 1) a delivery checklist to remind operators to shut valves on the vapor return line after ammonia is delivered, 2) a program to regularly test, inspect and replace check valves and excess flow valves at prescribed intervals, 3) personnel protective equipment and training to minimize the extent of any release. (Ex. 22, Testimony on Hazardous Materials, pp. 9-11.)

Mr. Muraoka testified that Sunrise will employ additional safety steps including 1) development and implementation of an Emergency Response Plan consistent with the Hazardous Waste Operations Emergency Response (HAZWOPER) standard [29 C.F.R., ⁄ 1910.120 (p)], 2) development of a Risk Management Plan (RMP) and Process Safety Management Plan (PSM) Program for the ammonia process including health and safety measures to protect employee and public health, 3) transportation of anhydrous ammonia in compliance with California Vehicle Code requirements for hazardous materials,[62] 4) notification

[61] The difference between tank capacity and the lesser amount of anhydrous ammonia actually stored is to meet American Society of Mechanical Engineers (ASME) guidelines for thermal expansion. (10/14/9 RT 46.)

[62] California Vehicle Code section 32100.5 regarding materials that pose inhalation hazards.

about the ammonia process to oil field workers outside the Sunrise project site. (*Ibid*.)

The Sunrise witness next explained how Applicant evaluated the potential risks of storing and handling anhydrous ammonia at the project. The analysis of potential impacts must consider both the probabilities of a release occurring and the consequences if a release were to occur. The analysis included scenarios for a worst case[63] and a plausible case.[64] The worst case analysis was performed in accordance with federal RMP and state Cal ARP programs and determined that a worst-case release could produce a 200 parts per million (ppm) area of impact approximately 2.9 miles in diameter. As a result, a Program Level 3 RMP, the most stringent level, will be prepared for the Sunrise project. The probability of the worst case scenario occurring and resulting in an impact is conservatively estimated at 1.86 in one million over the 30-year life of the project. (10/14/99 RT 48.) The probability of occurrence for the plausible case scenario is 5.4 in one million of a 30-year project life. (*Ibid*.)

The witness noted that both of these scenarios are based on very conservative assumptions regarding meteorological conditions. The probabilities are reduced further because the ammonia tank will be designed to the most stringent earthquake standards and the ammonia process will incorporate safety management and employment training under the RMP. (*Id*., p. 49.) The testimony compared the risks to other common risk probabilities and noted that a person is more likely to die from a lightening strike than to merely witness the plausible or worst-case ammonia release scenario. The probability of an

[63] Worst case involves a catastrophic release of all the ammonia in a full tank within a ten minute period and under category F stability (stagnated air, very little mixing) one meter/second.

[64] The plausible case release scenario involves the release of ammonia from a simultaneous occurrence of human error and various equipment failures in the following concatenation of circumstances: two check valves left open and two excess flow valves simultaneously fail. Furthermore, the assumed release is not stopped for ten minutes. The plausible scenario was also carried out assuming extremely stable meteorological conditions. (10/14/99 RT 48.)

ammonia road transportation accident occurring is comparable to that of an air transportation death.[65] (Ex. 22 Testimony on Hazardous Materials, p. 9.)

Applicant also disputed CURE s argument that state law requires review and comment on the project s RMP for anhydrous ammonia before the Commission can issue a license for the Sunrise project. Sunrise argues that the RMP is not a permit which is superseded by the Commission s authority under Public Resources Code section 25500. Therefore, Sunrise will have to prepare an RMP prior to obtaining a certificate of occupancy from the Kern County Environmental Health Department. After Sunrise submits the RMP, the Kern County Environmental Health Department must make it available to the public for review and comment. [19 CCR, ⁄ 2745.2 (a)(4).] Thus, Sunrise argues that full LORS compliance will occur prior to plant operation. (Sunrise Reply Brief [Group A Topics] p. 6.)

Sunrise also disputed CURE s position that Applicant failed to analyze the risk to oil field workers from anhydrous ammonia. Sunrise notes that in its pre-filed testimony the risk was analyzed and determined to be significantly lower than 4.8×10^{-7}. (Ex. 22, Testimony on Hazardous Materials, p. 12.) In addition, the witness reviewed the added risk of substituting aqueous ammonia for anhydrous, concluding that to do so would not reduce on-site risks. (10/14/00 RT 56, 65, 66.)

The Sunrise panel concluded that as currently designed, and with the incorporation of the Conditions of Certification proposed by Staff, the Sunrise project will comply with all laws, ordinances, regulations and standards and will not present a significant risk to workers, the public, or the environment. (10/14/99 RT 50.)

[65] The risks associated with the transportation of anhydrous ammonia to the project site are discussed further in the section of this Decision entitled Traffic and Transportation, *infra*.

2. Staff

Staff witness Rick Tyler introduced the Staff analysis of hazardous material handling for the project. (Ex. 23, p. 25; Ex. 31, App. B, Table 8.12-2; 10/14/99 RT 73.) Mr. Tyler explained the role of probability in the staff risk analysis for anhydrous ammonia use at the Sunrise project. He testified that when the risk of an accident such as a major ammonia release is below $1x10^{-6}$, Staff regards it as so unlikely that it can appropriately be deemed insignificant. (Ex. 23, p. 32.) He also noted that in carrying out the various analyses, Applicant has used very conservative assumptions which are recommended by the Environmental Protection Agency. (10/14/99 RT 87.)

Mr. Tyler was questioned about what factors caused him to forgo a recommendation that the Applicant use aqueous instead of anhydrous ammonia. He responded that the few residences are located a great distance from the project,[66] that the meteorological conditions assumed for the worst and plausible case scenarios are highly improbable,[67] and that no record of failure exists for a tank built to the standards proposed for Sunrise.

Like Applicant, the Staff also disputes CURE s position that an RMP is needed before the Commission can issue its license. Staff points out that Condition of Certification **GEN-1** requires Sunrise to obtain a certificate of occupancy. (Ex, 23, 305.) **HAZ-2** requires Sunrise to complete its RMP at least 60 days prior to the first delivery of anhydrous ammonia. Government Code section 65850.2(b) requires that an RMP be submitted to an administrative agency prior to issuance of the certificate of occupancy. Staff points out that all these requirements are compatible.

[66] The nearest public residences are two houses located 1.3 miles from the Sunrise project. (10/14/99 RT 54.)

[67] Staff determined that category F stability with wind at one meter per second which blows in the direction of the residences occurs in the area approximately 0.2 percent of the time. (Ex. 23, p. 29.)

In addition, Staff challenges CURE s argument that there has not been a meaningful opportunity for public comment on the ammonia issue. In Staff s view, this argument ignores the more-than-one-year AFC public process that has been going on in the Sunrise case. Further opportunity for public comment will take place when the Kern County Environmental Health Department asks for comment on the RMP. (Staff Reply Brief-Topic Group A, p. 3.) To ensure adequacy of the RMP, the Conditions of Certification require that the RMP be submitted for concurrent review by Commission staff and the Kern County Environmental Health Department. The witness concluded that, with the adoption of the proposed Conditions of Certification, the project will comply with LORS, including Health and Safety code, section 41700, and will not pose any potential for significant impacts to the public from hazardous materials releases. (Ex. 23, p. 33.)

3. CURE

This intervenor took the position that, if the Commission adopts Staff s recommendations regarding the use of anhydrous ammonia, the Sunrise project will not comply with applicable LORS and will cause significant, unmitigated impacts, endangering public health and safety. CURE argues that the Commission cannot find that the Sunrise project meets applicable LORS because it has not yet complied with Health and Safety Code section 25531, which requires a Risk Management Plan (RMP) where a facility plans to store more than the threshold amount of ammonia. CURE states that because the Commission has exclusive licensing authority over power plants, its license supersedes the requirement for a certificate of occupancy. As a result, CURE believes that an RMP must be completed before the Commission can issue a license. They add that to do otherwise will have cut the public out of the process by approving the use of anhydrous ammonia before conducting a comment period on the RMP. (CURE Opening Brief-Topic Group A, p. 3-4.)

CURE also takes the position that the evidence of record demonstrates that the use of anhydrous ammonia at the Sunrise project will pose significant impacts and will endanger health and safety for the public. CURE sites Applicant s worst-case analysis, which shows that people living within 2.9 miles of the project could be exposed to 200 PPM of ammonia gas. (*Id*., p. 4, citing 11/14/99 RT 47[*sic*].) CURE argues that Staff should not consider probabilities as part of its analysis because the federal RMP program, and the state program on which it is based, do not allow the consideration of accident probabilities (*Id*., p. 5 citing 10/14/99 RT 62.) Further, even if probabilities are ignored, CURE points out that the worst-case analysis shows exposures which exceed the Staff threshold for significance. Finally, CURE believes Staff is willing to expose a small number of residences to higher risks than Staff would allow for a larger population. (*Id*., p. 6.)

Cure also argues that the Commission staff analysis has ignored impacts on off-site workers. CURE believes these off-site workers are not protected by OSHA requirements which apply to on-site workers. The intervenor states that had Staff considered the presence of oil field workers, its analysis would have been different. (*Id*., p. 7.) Cure states that Staff is being inconsistent with its handling of ammonia safety issues in other cases. (*Id*., p. 8.)

In response to these concerns, CURE advocates that the Commission should require public review and comment on a valid RMP prior to issuing its licensing decision. CURE adds that primary among the mitigation measures considered in the RMP, as well as by the Commission, should be the use of aqueous ammonia instead of anhydrous ammonia for the Sunrise project.

COMMISSION DISCUSSION

The evidence is uncontroverted that the Sunrise project will store and handle the various hazardous materials used during construction in a safe manner.

Furthermore, the evidence is clear that the project s use of natural gas as a fuel will pose no significant risk to worker or public health and safety. In addition, CURE has not challenged the design of the ammonia handling system proposed for the project.

However, CURE does take issue with the risk analysis performed by the Commission staff. CURE argues that Staff erred in using the probability of a worst-case or probable case scenario when assessing the significance of the risk from an ammonia release. In CURE s view this approach is wrong because the federal RMP process does not incorporate a probability component. Yet the RMP process does not set the standard of review under the California Environmental Quality Act. The CEQA process and the RMP process are different and service two different functions. CEQA states that the purpose of an environmental impact report is to provide public agencies and the public in general with detailed information about the effect which a proposed project is *likely to have* on the environment [68] (emphasis added.) The CEQA guidelines add that, the significant effects should be discussed with emphasis in proportion to their severity *and probability of occurrence.* [69] (emphasis added.) Thus, when assessing potential impacts of a project, the Commission is required by law to consider the probability of the impacts actually occurring. To do otherwise would elevate every risk, no matter how unlikely, to the level of a significant impact. That would be inconsistent with the law and with Commission practice in prior siting cases.[70]

Both Applicant and Staff analyses determined that the ammonia system would have no significant risk of impact on workers or the public. Staff witness Tyler enumerated the conservatism involved in the analysis and concluded that the

[68] Pub. Resources Code,/21061.

[69] Cal. Code of Regs., tit. 14,/15143.

[70] See Sutter Decision, pp. 197-198, Docket No. 97-AFC-2, (Publication No. P800-99-010.)

worst-case risk is not plausible. (10/14/99 RT 80.) The conservative nature of the analysis, the remoteness of public receptors, and the fact that no record exists of a tank rupturing when designed to the standards used here, support the Commission finding of no significant risk of impact. Without the threat of a significant risk, there is no justification for requiring the use of aqueous ammonia, instead of anhydrous ammonia, as CURE recommends.

CURE is also mistaken in its position that the RMP is a permit process which must be carried out prior to this Commission issuing a license to the Sunrise project. Rather, state law requires that the RMP be submitted prior to a local agency granting a certificate of occupancy. (Government Code,/65850.2.) The Sunrise project must obtain a certificate of occupancy pursuant to Condition of Certification **GEN-1**. In addition, Condition of Certification **HAZ-2** requires that the RMP process be completed at least 60 days prior to the first delivery of anhydrous ammonia. Thus, while a full RMP process will be conducted for the Sunrise project prior to operation, no RMP is required before the Commission issues a license.

Furthermore, we are not persuaded by CURE s claim that the public will be denied meaningful participation in the risk analysis process or be denied comment on mitigation measures. The Commission s certification process has thus far provided the public opportunities to participate and comment on the Sunrise project for more than one year. Furthermore, the local RMP process that will be completed prior to project operation will provide additional opportunity for the public to comment upon ammonia use at the Sunrise project.[71]

In addition, if the administering agency is dissatisfied with the project s RMP, Condition of Certification **HAZ-2** requires Applicant s final plan to reflect all recommendations of the administering agency, as well as those of the Energy Commission s CPM. Any revisions that result from that process would require

[71] See Cal. Code of Regs., tit 19,/2745.2.

compliance with the Commission s post-certification amendment regulations, which also require further public notice.[72] Thus, there is no basis for CURE s claim that public participation concerning project risks will be denied or even limited.

Though CURE contends that the Commission has not adequately analyzed the risk of anhydrous ammonia to nearby oil field workers, the evidence is to the contrary. The testimony provided by Applicant s panel established that the risk of an oil field worker to the worst-case scenario is extremely remote . (Ex. 22, Testimony on Hazardous Materials, p. 12.) The proper standard for analyzing project-related risks to off-site workers, as opposed to members of the public, is addressed in the section of this Decision entitled **Public Health**, *supra*. A discussion of the risks involved in transporting anhydrous ammonia to the project site is found in the section entitled **Traffic and Transportation**, *infra*.

FINDINGS AND CONCLUSIONS

Based on the evidence of record concerning the topic area of Hazardous Materials Management, we find and conclude as follows:

1. The Sunrise Cogeneration and Power Project will use hazardous materials at the facility.

2. Hazardous materials to be used during the construction phase of the Sunrise project include gasoline, diesel fuel, motor oil, hydraulic fluid, lubricants, solvents, cleaners, sealers, welding flux, paint, and paint thinner.

3. Hazardous materials to be used in substantial quantities during the operation phase of the Sunrise project include natural gas and anhydrous ammonia. Anhydrous ammonia is the only hazardous material that will be stored, handled, and use in reportable amounts.

4. The principal types of potential public health and safety hazards associated with the hazardous materials noted in Findings 2 and 3 above

[72] Cal. Code of Regs., tit. 20,／1769.

are the accidental release of ammonia gas and fire and explosion from natural gas.

5. The mitigation measures incorporated in the Conditions of Certification below will ensure that risks to public health and safety from hazardous materials are reduced to an insignificant level.

6. The Sunrise Cogeneration and Power Project will not contribute to a cumulative risk to the public health and safety.

7. Implementation of the Conditions of Certification below will ensure that the Sunrise Cogeneration and Power Project will comply with the laws, ordinances, regulations, and standards specified in the appropriate portion of Appendix A of this Decision.

We therefore conclude that the hazardous materials used at the Sunrise Cogeneration and Power project will not create or contribute to any significant adverse public health and safety impacts.

CONDITIONS OF CERTIFICATION

HAZ-1 The project owner shall not use any hazardous material in reportable quantities, as specified in Title 40, C.F.R., Part 355, Subpart J, section 355.50, not listed in Appendix B, unless approved in advance by the CPM.

Verification: The project owner shall provide to the CPM, in the Annual Compliance Report, a list of hazardous materials contained at the facility in reportable quantities.

HAZ-2 The project owner shall provide a Risk Management Plan and a Process Safety Management Plan to Kern County Environmental Health Department and the CPM for review at the time the plans are first submitted to the U.S. Environmental Protection Agency (EPA) and the California Occupational Safety and Health Administration (Cal-OSHA). The project owner shall reflect all recommendations of the Kern County Environmental Health Department and the CPM in the final plan. A copy of the final plans, reflecting all comments, shall be provided to the Kern County Environmental Health Department and the CPM once approved by EPA and Cal-OSHA.

Verification: At least sixty (60) days prior to the delivery of anhydrous ammonia to the facility, the project owner shall provide the final plans listed above to the CPM for approval.

D. WORKER SAFETY

THIS TOPIC HAS NOT BEEN WRITTEN YET

CONDITIONS OF CERTIFICATION

SAFETY-1 The project owner shall submit to the CPM a Project Construction Safety and Health Program, which shall include:

- A Construction Injury and Illness Prevention Program
- A Construction Fire Protection and Prevention Plan
- A Personal Protective Equipment Program

Protocol: The Construction Injury and Illness Prevention Program and the Personal Protective Equipment Program shall be submitted to the California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA) Consultation Service, for review and comment concerning compliance of the program with all applicable Safety Orders.

The Construction Fire Protection and Prevention Plan shall be submitted to the KCFD for review and acceptance.

Thirty days prior to the start of construction, or a lesser period of time as mutually agreed to by the project owner and the CPM, the project owner shall submit to the CPM a copy of the Project Construction Safety and Health Program and the Personal Protective Equipment Program, with a copy of the cover letter of transmittal of the plan to CAL-OSHA. The project owner shall provide a letter from the KCFD stating that they have reviewed and accept the Construction Fire Protection and Prevention Plan.

SAFETY-2 The project owner shall submit to the CPM a Project Operation Safety and Health Program containing the following:

- An Operation Injury and Illness Prevention Plan
- An Emergency Action Plan
- An Operation Fire Protection Plan
- A Personal Protective Equipment Program

Protocol: The Operation Injury and Illness Prevention Plan, Emergency Action Plan, and Personal Protective Equipment Program shall be submitted to the Cal/OSHA Consultation Service, for review and comment concerning compliance of the program with all applicable Safety Orders.

Protocol: The Operation Fire Protection Plan and the Emergency Action Plan shall be submitted to the KCFD for review and acceptance.

At least 30 days prior to the start of operation, the project owner shall submit to the CPM a copy of the final version of the Project Operation Safety & Health Program. It shall incorporate Cal/OSHA s Consultation Service comments, stating that they have reviewed and accepted the specified elements of the proposed Operation Safety and Health Plan.

The project owner shall notify the CPM that the Project Operation Safety and Health Program (Injury and Illness Prevention Plan, Fire Protection Plan, the Emergency Action Plan, and Personal Protective Equipment requirements), including all records and files on accidents and incidents, is present on-site and available for inspection.

SAFETY-3 The project owner shall design and install all exterior lighting to meet the requirements contained in the Visual Resources conditions of certification and in accordance with the American National Standards Practice for Industrial Lighting, ANSI/IES-RP-7.

Within 60 days after construction is completed, the project owner shall submit a statement to the CPM that the illuminance levels contained in ANSI/IES RP-7 were used as a basis for the design and installation of the exterior lighting.

VII. ENVIRONMENTAL ASSESSMENT

As part of its statutory mandate, the Commission must analyze a project s potential effect upon various elements of the human and natural environments.

A. BIOLOGICAL RESOURCES

The Commission s examination of biological resources focuses upon impacts to state and federally listed species, species of special concern, wetlands, and other areas of critical biological interest in the project vicinity. Here we summarize the potential impacts to biological resources due to the project and its related facilities, and address the adequacy of mitigation measures necessary to reduce any identified impacts to less than significant levels. The detailed evidence of record submitted in this proceeding was developed in consultation and cooperation with the United States Fish & Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG).

SUMMARY OF THE EVIDENCE

The Sunrise Cogeneration and Power Project and its associated transmission line corridor is to be located on the west side of San Joaquin Valley, a broad treeless plain in the rain shadow of the Coast Ranges. The climate is characterized as Mediterranean, with summer temperatures typically exceeding 100 degrees Fahrenheit (^{i}F) and mild winter temperatures. Rainfall is 4 to 6 inches per year with tule fog supplementing precipitation in November, December and January. These conditions have contributed to the formation of vegetation adapted to dry conditions. Vegetation species common to the area include: Valley Salt Bush scrub, Nonnative Grassland, Valley Sink scrub, and riparian vegetation. (Testimony of William J. Vanherweg introduced 1/11/00 RT 94.)

The vegetation at the site and along the transmission corridor supports a wide variety of birds, mammals, and reptiles including game birds species such as the mourning dove and the California quail. A variety of sensitive species are also known to occur in the project vicinity. These are species that are either federally listed as rare, threatened, or endangered, or are state listed as Fully Protected, or state or federally identified as Species of Special Concern. Also included in this group are plant species identified in the California Native Plant Society s Inventory of Rare and Endangered Vascular Plants of California or the California Natural Diversity Special Plants List. Sensitive plants in western Kern County include California jewelflower, Kern mallow, and Hoover s eriastrum. Sensitive animal species include the San Joaquin kit fox, giant kangaroo rat, San Joaquin antelope squirrel, blunt-nosed leopard lizard, Swainson s hawk, golden eagle, California condor, and the burrowing owl. (Ex. 63, pp. 3-4.)

The sensitive plant and animal species, which could potentially be affected by the Sunrise project, are shown in Biological Resources Table 1, which follows:

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BIOLOGICAL RESOURCES Table 1
- Sensitive Species -

Sensitive Plants	Status*
Forked fiddleneck (*Amsinckia vernicosa* var. *furcata*)	CNPS List 1B
California jewelflower (*Caulanthus californicus*)	CNPS List 1B/FE/SE
Slough thistle (*Cirsium crassicaule*)	CNPS List 1B
Gypsum-loving larkspur (*Delphinium gypsophilum* ssp. *gypsophilum*)	CNPS List 4
Recurved larkspur (*Delphinium recurvatum*)	CNPS List 1B
Hoover s eriastrum (*Eriastrum hooveri*)	CNPS List 1B/FT
Cottony buckwheat (*Eriogonum gossypinum*)	CNPS List 1B
Tejon poppy (*Eschscholzia lemmonii* ssp. *kernensis*)	CNPS List 1B
Kern mallow (*Eremalche parryi* ssp. *kernensis*)	CNPS List 1B/FE
Hollisteria (*Hollisteria lanata*)	CNPS List 1B
San Joaquin wooly threads (*Lembertia congdonii*)	CNPS List 1B/FE
Oil neststraw (*Stylocline citroleum*)	CNPS List 1B

Sensitive Wildlife	Status*
Tricolored blackbird (*Agelaius tricolor*)	SSC
LeConte s thrasher (*Toxostoma lecontei macmillanorum*)	SSC
California condor (*Gymnogyps californianus*)	SE/FE
Golden eagle (*Aquila chrysaetos*)	SC
Swainson s hawk (*Buteo swainsoni*)	ST
Long-eared owl (*Asio otus*)	SSC
Burrowing owl (*Athene cunicularia*)	SSC
Northern harrier (*Circus cyaneus*)	SSC
Yellow warbler (*Dendroica petechia*)	SSC
White-tailed kite (*Elanus caeruleus*)	FP
California horned lark (*Eremophila alpestris actia*)	SSC
Prairie falcon (*Falco mexicanus*)	SSC
Loggerhead shrike (*Lanius ludovicianus*)	SSC
Blunt-nosed leopard lizard (*Gambelia sila*)	SE/FE/FP
San Joaquin coachwhip (*Masticophis flagellum ruddocki*)	SSC
Western spadefoot toad (*Scaphiopus hammondii hammondii*)	SSC
Giant kangaroo rat (*Dipodomys ingens*)	SE/FE
Short-nosed kangaroo rat (*Dipodomys nitratoides brevinasus*)	SSC
Tulare grasshopper mouse (*Onychomys torridus tularensis*)	SSC
San Joaquin pocket mouse (*Perognathus inornatus inornatus*)	SSC
San Joaquin antelope squirrel (*Ammospermophilus nelsoni*)	ST
San Joaquin kit fox (*Vulpes macrotis mutica*)	ST/FE
American badger (*Taxidea taxus*)	SSC
Longhorn fairy shrimp (*Branchinecta longiantenna*)	FE
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FE
Vernal pool tadpole shrimp (*Lepidurus packardi*)	FT

* **Status legend:** CNPS List 1B = Plants rare or endangered in California and elsewhere (California Native Plant Society 1994), CNPS List 4 = Plants of Limited Distribution; SSC = Species of Special Concern (CDFG 1992), FE = Federally listed Endangered, FT = Federally listed Threatened, SE = State listed Endangered; ST = State listed Threatened and FP = State Fully Protected.

Source: Ex. 63, p. 5

1. Project Site

The Sunrise project will be located on a 16-acre site in the Midway-Sunset oil field. The site contains a mixture of annual grasslands and some saltbush scrub vegetation. The site and surrounding area have a long history of oil development as evidenced by the presence of oil production wells, steam generators and steam lines as well as related oil development facilities. Vegetation types around the site and new switching station are potential habitat for a variety of sensitive species.[78] Construction of the power plant and use of laydown areas will permanently impact 12.4 acres, with construction of the switching station impacting on additional 3.2 acres of annual grassland habitat. (Ex. 63, pp. 4-6.)

2. Linear Facilities

Of the seven alternative transmission line routes considered by Applicant for the Sunrise project, only Routes B and F remain as preferred alternatives. Just as in the case of the power plant and switching station, construction of any of the possible transmission line options has the potential to impact several sensitive animal and plant species. Route B would connect the project directly to the PG&E Midway substation near Buttonwillow. That route would permanently impact up to 6.9 acres and temporarily impact 14.2 acres of privately owned habitat. It would also permanently impact 3.5 acres and temporarily impact 1.3 acres of conserved habitat. (Ex. 63, p. 7.)

Furthermore, the Route B corridor crosses the 44,000 acre habitat conservation planning area identified as the Lokern Natural Area. This area was first established as a high priority location for habitat conservation since it represents

[78] Sensitive species include: the San Joaquin kit fox, blunt-nosed leopard lizard, San Joaquin antelope squirrel, various listed kangaroo rat species, and several sensitive plant species. (Ex. 63, p. 6.)

a rather large acreage of undisturbed habitat and is home for the sensitive species known to occur in the area. (*Id*.)

The acreage impacted by the use of Route B would be significantly lower if alternative Route F is developed. Route F would connect the Sunrise project to the proposed La Paloma switchyard, and then would connect La Paloma and Midway with a joint-ownership transmission line.[79]

The natural gas supply pipeline for the power plant will be roughly 60 feet long and will tie into the existing Texaco California, Inc. Main Utility Corridor. Construction of the pipeline will permanently impact 0.07 acres of saltbush habitat. Construction of the steam, feedwater, and wastewater pipelines associated with the power plant will impact 1.4 acres of habitat with the freshwater pipeline permanently impacting an additional 0.07 acres of habitat. In addition, access roads will be built to service the power plant and switching station, resulting in a permanent loss of 3.5 acres of habitat. (Ex. 63, p. 6-8.)

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[79] The La Paloma transmission route was thoroughly studied as part the La Paloma Generating Project AFC proceeding, Commission Docket No. 98-AFC-2.

BIOLOGICAL RESOURCES Table 2

DIRECT IMPACTS ACREAGES

	Private lands (acres)		Conserved lands (acres)	
Facility	**Permanent**	**Temporary**	**Permanent**	**Temporary**
Power plant/laydown area	12.4	13.8	--	--
Sunrise switchyard	3.2	--	--	--
Steam/feed/wastewater lines	1.4	--	--	--
Freshwater pipelines	0.07	--	--	--
Natural gas pipeline	0.07	--	--	--
Access road improvement	3.5	--	--	--
Worst case t-line Route B	7.0	14.2	1.3	3.5
IMPACT ACREAGE TOTALS	**27.5**	**28.0**	**1.3**	**3.5**

INDIRECT IMPACTS ACREAGE

Facility	**Private lands (acres) Permanent Impact**
700 new oil production wells & steam injection wells, steam lines & dirt roads	176.4
IMPACT ACREAGE TOTAL	**176.4**

Source: Ex. 63, p. 10

3. Indirect Impacts

The Sunrise project will produce approximately 120,000 barrels of steam per day for enhanced oil recovery in the Midway-Sunset oil fields. This amount of steam is sufficient for roughly 2000 oil production and associated steam injection wells. Within the _-mile radius sphere of influence of steam produced by the project, roughly 1300 oil production and steam injection wells currently exist around the proposed plant. Applicant's parent company is expected to construct roughly 700 new wells.[80]

[80] The extent of the Sunrise project s indirect impacts were determined through an agreement between Applicant and Staff and memorialized in a document identified as a joint blueprint. (Ex. 23, p. 18, Fig. 1.) CURE did not agree that the scope in the joint blueprint was adequate. The joint blueprint was submitted to the Commission on May 21, 1999. The Sunrise Committee, in an rder dated June 2, 1999, adopted the joint blueprint as the guiding document for the project scope and associated environmental analysis.

Construction of these new oil production wells, steam injection pipelines and wells, and associated dirt access roads represent significant indirect impacts attributable to the Sunrise Cogeneration and Power Project. Staff has determined that this part of the Sunrise project will permanently impact 176.4 acres of habitat. (Ex. 63, p. 9.)

While the project s direct and indirect impacts will affect sensitive species known to exist in the area, Applicant has committed to employing a series of mitigation measures to minimize or totally avoid impacting individual sensitive species. A complete list of mitigation measures and their implementation methods will be completed in consultation with the CDFG, BLM and USFWS and will be included in the project s Biological Resources Mitigation Implementation and Monitoring Plan. (BRMIMP) (Ex. 69; 1/11/00 RT 1-12.) Many of the specific mitigation measures are detailed in the Conditions of Certification, which appear at the end of this section. These mitigation steps include specific take avoidance measures for sensitive species such as den excavation and replacement for the San Joaquin kit fox. Other measures involve restricting pets, firearms use, and high vehicle speeds at the project site. (See Condition of Certification **BIO-1**.)

One of the primary mitigation measures employed by the Sunrise project is the purchase of compensatory habitat to make up for the permanent loss of habitat caused by the direct and indirect impacts of the project. As detailed in Table 2 above, staff calculated the combined total acreage of permanently impacted habitat to be 176.4 acres. That acreage is then multiplied by three, which is the accepted compensation ratio for the permanent loss of private habitat. The total acreage of compensatory habitat amounts to 655.1 acres. The agreed-upon cost is $1000 per acre so Applicant will pay a total of $655,100 for compensatory habitat to the Center for Natural Lands Management. (Ex. 79, p. 10; 1/11/00 RT 11.) The compensatory habitat purchased will increase the size of the Lokern

Natural Preserve, a conservation area of approximately 3500 acres.[81] Even CURE s witness, though critical of the project s impacts on wildlife from H_2S and Valley Waste facilities, described the compensatory habitat purchase as great , very laudable , and adequate to mitigate the project s impacts on listed species. (1/11/00 RT 120-121.)

a. Hydrogen Sulfide Impacts

CURE presented the testimony of Dr. Michael Fry who opined that based on his review of two studies conducted by Linda Spiegel of the Commission and by Dr. Kristin Charleton, significant harm to sensitive species would occur as a result of the project. He testified that this impact would result from increased H_2S emission from the project and the additional 700 associated wells. (1/11/00 RT 106.) However, Ms. Spiegel testified that her research did not support Dr. Fry s conclusions. (1/11/00 RT 133-135.) Dr. Charlton testified that her study too could not be relied upon to support Dr. Fry s conclusion that hydrogen sulfide emissions are adversely affecting the San Joaquin kit fox. Staff biologist Rick York and Applicant s biologist William Vanherweg both disagreed with Dr. Fry s conclusion. (1/11/00 RT 37, 92.)

b. Valley Waste Facility

CURE s witness also contended that the ponds at the Valley Waste facility pose a threat to wildlife and that the Sunrise project should be required to mitigate the impact by screening the ponds. (1/11/00 RT 114-117.) While Valley Waste is not a party before the Commission, it will receive wastewater from the Sunrise project and currently receives waste streams from several oil field operators

[81] The same preserve was used by the La Paloma Project for habitat compensation (1/11/00 RT 5-12.)

including Texaco California, Inc.[82] (Ex. 93.) Expert witnesses for both Sunrise and Staff agreed that the Valley Waste Buena Vista —2 ponds pose no threat to wildlife because they are steep sided, deep, lack vegetation, and pose a deterrent to waterfowl. (1/11/00 RT 13, 62-63.) In addition, CDFG and the Division of Oil, Gas and Geothermal Resources periodically visit the Valley Waste facility. CDFG witness Donna Daniels testified that CDGG has authority to enter Valley Waste facilities to investigate any threat to wildlife and that they have investigated Valley Waste ponds in the past but have no record of any violations. (1/11/00 RT 46-47.) Susan Jones of USFWS also testified that her agency has enforcement authority over any threat the Valley Waste ponds may pose to wildlife. (1/11/00 RT 45.)

4. Outstanding Permits

Commission staff biologist Rick York pointed out that at the time of the evidentiary hearing on January 11, 2000, the Sunrise project still needed three biology-related permits in order to move forward. The first is the federal Biological Opinion, to be issued by the USFWS. Susan Jones of the USFWS testified that she is responsible for preparing the Biological Opinion and that when issued, she anticipates it will contain conditions similar to those Conditions of Certification proposed in the Staff FSA.[83] (1/11/00 RT 43.) Another required item is the state incidental take permit, issued by CDFG. Mr. York testified that CDFG was satisfied to date with Applicant's proposals and believed the project could comply with all terms and conditions in the permit. (1/11/00 RT 38.) The permit will not be issued until CDFG sees the Commission s Decision. (1/11/00 RT 39.)

[82] As examined more thoroughly in the Soil and Water Resources section of this Decision, the Commission has determined that the water coming from the Sunrise project to Valley Waste is nonhazardous.

[83] Ms. Jones noted that the USFWS was late in issuing the Biological Opinion for the Sunrise project and anticipated it would be completed by the end of February. (1/11/00 RT 43.) In a subsequent communication, USFWS informed Mr. York the Biological Opinion would be further delayed.

The final outstanding permit is the streambed alteration permit, also known as the section 2081 permit. Ms. Daniels testified that this permit would parallel the Commission staff efforts and will be issued by her department as soon as the Commission issues its Decision. (1/11/00 RT 44.) Both the witnesses for USFWS and for CDFG stated that conditions proposed by Commission staff were acceptable to their agencies. In addition, witnesses for both Staff and Applicant agreed that the Sunrise Cogeneration and Power Project would comply with all applicable laws, ordinances, regulations and standards. (1/11/00 RT 57, 93.)

COMMISSION DISCUSSION

CURE asks us to believe that H_2S emissions related to the Sunrise project will impose a significant impact on sensitive species in the project area. However, CURE s witness did no original research to establish his position, relying instead on the work of Linda Spiegel and Dr. Kristin Charlton. Both Spiegel and Charlton testified that their research did not support Dr. Fry s conclusions. (1/11/00 RT 24, 28, 133-135.) Also biologists for Applicant, Staff, CDFG and USFWS concurred that insufficient evidence exists to find that additional mitigation of hydrogen sulfide from wells is necessary to protect sensitive species such as the San Joaquin kit fox. Thus, the weight of evidence fails to support CURE s claim of impacts to wildlife from H_2S.

Regarding CURE s claim that Valley Waste ponds pose a threat to wildlife, we find that CURE failed to provide evidence of any pond use by or any related harm to wildlife. In fact, CURE s witness acknowledged having seen no birds or wildlife using the Valley Waste ponds when he conducted his visit to the ponds. (1/11/00 RT 123.) Thus, the evidence of record does not support CURE s claim that the Valley waste ponds must be screened in order to prevent a significant threat to wildlife.

Furthermore, all project-related impacts to biological resources have been fully mitigated. Every expert witness to testify, including the witness for CURE, supported this determination. (1/11/00 pp. 120-121, CURE; Ex. 63, p. 23; 1/11/00 RT 64, Staff; 1/11/00 RT 92, Applicant; 1/11/00 RT 49, CDFG; 1/11/00 RT 43, USFWS.) Thus, the record supports no other finding than that all potential impacts to biological impacts will be adequately mitigated and that the project will comply with applicable laws, ordinances, regulations and standards.

FINDINGS AND CONCLUSION

Based upon the evidence of record, we find and conclude as follows:

1. Sensitive vegetation and animals exist in the project area and in the _-mile radius examined for indirect impacts as part of the project area.

2. Construction and operation of the Sunrise Cogeneration and Power Project, if not adequately mitigated, can create adverse impacts to the sensitive biological resources in the project area.

3. The mitigation measures contained in the Conditions of Certification set forth below were developed in cooperation and consultation with the United States Fish & Wildlife Service and with the California Department of Fish and Game.

4. The mitigation measures mentioned above are sufficient to allow the United States Fish & Wildlife Service to issue a formal Biological Opinion , and for the California Department of Fish and Game to express its satisfaction and its intent to issue a section 2081(b) incidental take permit and a streambed alteration permit for the Sunrise Cogeneration and Power Plant.

5. The Conditions of Certification assure that the Sunrise Cogeneration and Power Project will cause no significant adverse impacts to biological resources in the project area.

6. The Conditions of Certification, if properly implemented, ensure that the Sunrise Cogeneration and Power Project will comply with applicable laws, ordinances, regulations, and standards set forth in the pertinent portion of Appendix A of this Decision.

We therefore conclude that construction and operation of the Sunrise Cogeneration and Power Project will not create any significant direct, indirect, or cumulative adverse impacts to biological resources.

CONDITIONS OF CERTIFICATION

SCPC MITIGATION

BIO-1 The project owner will implement the mitigation measures identified in Section 8.2, pages 8.2-20 to 8.2-22 of the SCPC Application for Certification (SCPP 1998a). The project owner s proposed mitigation measures will be incorporated into the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) (see Condition of Certification **BIO-9**, below) unless the mitigation measures conflict with mitigation required by the U. S. Fish and Wildlife Service and the California Department of Fish and Game contained in the federal Biological Opinion and state Incidental Take Permit, respectively. If there is a conflict between the draft BRMIMP and the federal Biological Opinion and/or the state Incidental Take Permit, then the federal and/or state conditions or mitigation measures will supercede those found in the BRMIMP.

Protocol:

1. Prior to the onset of ground-disturbance activities, project personnel shall be briefed on the occurrence and distribution of listed species in the project area, measures that are being implemented to protect these species during project actions, and the reporting requirements should incidental take occur. New workers will receive training within 15 days of their first day of employment.

2. No more than 14 days prior to commencement of construction activities, a qualified biologist(s) shall conduct pre-activity surveys of proposed work zones (for the power plant, natural gas pipelines, water pipeline, and transmission line). The buffers around each area will be species specific and correspond to avoidance buffers mandated by the biological opinion. During pre-activity surveys, the status of previous surveys shall be reviewed. San Joaquin kit fox dens and kangaroo rat and blunt-nosed leopard lizard burrows shall be flagged for avoidance, as necessary, and additional habitat features, if any, shall be identified and flagged as necessary.

3. Biological monitors (an SCPC term) shall:

   - Accompany initial grading crews throughout the project area at all times that activities with the potential to affect listed species are being conducted;
   - Conduct pre-activity surveys as described above;
   - Aid project crews in satisfying avoidance criteria and implementing project mitigation as described in this assessment;
   - Aid in relocating access roads and laydown areas as necessary;
   - Inspect open trenches and footing holes for stranded wildlife and remove as necessary each morning;
   - Observe and note all pertinent information concerning project effects on listed species; and
   - Assist project personnel in conducting the proposed project in such a manner as to minimize adverse impacts on listed species.

4. Pets shall not be permitted on the project site during construction activities.

5. All food-related trash shall be disposed of in closed containers only and regularly removed from the project site.

6. All spills of hazardous materials within listed species habitat shall be cleaned up immediately.

7. No firearms will be allowed in the project area.

8. All construction activities conducted during the project shall be confined to daylight hours, unless within a site perimeter fence or unless circumstances warrant night work and approval is obtained from CDFG and USFWS.

9. All project-related vehicles shall observe a speed limit of 20 miles per hour or less on all routes that traverse listed species habitat, except on state and county highways and roads.

10. Project-related vehicles shall be confined to existing primary or secondary roads or to specifically delineated project areas (i.e., areas that have been surveyed and described in existing documentation). Otherwise, no off-road vehicle travel shall be permitted.

11. All open trenches and footing holes shall be covered each night or ramped in such a way as to allow wildlife that may enter to escape unharmed. Ramps will be no more than 1,000 feet apart and no more than 45 degrees.

12. All known and potential San Joaquin kit fox dens, giant kangaroo rat burrows, San Joaquin antelope squirrel burrows, and burrows potentially inhabited by blunt-nosed leopard lizards shall be protected by implementing the following procedures. Such protection will help prevent incidental take of dens and burrows in excess of the take limits allowed by the resource agencies.

13. All avoidable San Joaquin kit fox dens, giant kangaroo rat, San Joaquin antelope squirrel and blunt-nosed leopard lizard burrows within the immediate vicinity of work areas shall be prominently staked and/or flagged as necessary to alert project personnel to their presence. All project-related flagging shall be collected and removed after completion of the project construction.

14. The project owner shall make every reasonable effort to prevent the collapse of dens and burrows by relocating temporary access roads and laydown areas to avoid dens and burrows or other means as determined to be appropriate for the sensitive wildlife and botanical resources.

15. Avoidance criteria for sensitive wildlife and botanical resources:

    - 200 feet from San Joaquin kit fox pupping dens;
    - 100 feet from known San Joaquin kit fox dens;
    - 50 feet from potential San Joaquin kit fox dens;
    - 50 feet from giant kangaroo rat burrow systems;
    - 50 feet from burrows where San Joaquin antelope squirrels or blunt-nosed leopard lizards were sighted;
    - 50 feet from potential blunt-nosed leopard lizard burrows; all small mammal burrows of sufficient size will be considered potential blunt-nosed leopard lizard burrows in areas where potential habitat for this species exists; and
    - 30 feet from any sensitive annual plant population that is in the state of reproduction (germination-seed set).

16. Within 45 calendar days after completion of construction, the project proponent shall submit a post-activity compliance report that details the following information: dates that construction occurred; pertinent data concerning success in meeting project mitigation measures, if any; known project effects on San Joaquin kit fox,

blunt-nosed leopard lizards, and giant kangaroo rats or other sensitive species, if any (including specific number of dens and small mammal burrows damaged or destroyed); occurrences of incidental take of federally listed species, if any; an assessment of the extent and severity of project impacts on all sensitive wildlife habitat; and other pertinent information.

17. The top 4 inches of topsoil shall be stockpiled near all lands that will be temporarily disturbed by grading during construction activities. These sites shall be recontoured and preserved topsoil shall be spread to aid in the reclamation of these sites after construction is complete.

18. The project owner will acquire agency-approved lands containing habitat similar to the habitat being disturbed during construction and operation of the proposed facilities (that will be preserved and managed for sensitive wildlife and plant species into perpetuity) or purchase credits in an established preserve in the following amounts:

    - 3.0 acres for each acre of habitat permanently disturbed (private lands);
    - 1.1 acres for each acre of habitat temporarily disturbed (private lands);
    - 4.0 acres for each acre of habitat permanently disturbed (conserved lands and BLM)
    - 2.1 acres for each acre of habitat temporarily disturbed (conserved lands and BLM)

Verification: At least 60 days prior to start of any project related ground disturbance activities, the project owner shall provide the Energy Commission Compliance Project Manager (CPM) with the Biological Resources Mitigation Implementation and Monitoring Plan for the SCPP, and the CPM will determine the plans acceptability within 15 days of receipt of the plan. Implementation of the above measures will be included in the BRMIMP.

DESIGNATED BIOLOGIST

BIO-2 Construction site and/or ancillary facilities preparation (described as any ground disturbing activity other than Energy Commission approved geotechnical work) shall not begin until an Energy Commission CPM approved Designated Biologist is available to be on site.

Protocol: The Designated Biologist must meet the following minimum qualifications:

1. A Bachelor s Degree in biological sciences, zoology, botany, ecology, or a closely related field;

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;

3. One year of field experience with biological resources found in or near the project area; and

4. An ability to demonstrate to the satisfaction of the CPM the appropriate education and experience for the biological resources tasks that must be addressed during project construction and operation.

If the CPM determines the proposed Designated Biologist to be unacceptable, the project owner shall submit another individual s name and qualifications for consideration. If the approved Designated Biologist needs to be replaced, the project owner shall obtain approval of a new Designated Biologist by submitting to the CPM the name, qualifications, address, and telephone number of the proposed replacement. No disturbance will be allowed in any designated sensitive areas until the CPM approves a new Designated Biologist and the new biologist is on site.

Verification: At least 90 days prior to the start of any ground disturbance activities, the project owner shall submit to the CPM for approval, the name, qualifications, address and telephone number of the individual selected by the project owner as the Designated Biologist. If a Designated Biologist is replaced, the information on the proposed replacement, as specified in the condition, must be submitted in writing at least ten working days prior to the termination or release of the preceding Designated Biologist.

BIO-3 The CPM approved Designated Biologist shall perform the following during project construction and operation:

1. Advise the project owner s Construction Manager on the implementation of the Biological Resource Conditions of Certification;

2. Supervise or conduct 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; and

3. Notify the project owner and the CPM of any non-compliance with any Biological Resources Condition of Certification.

Verification: During project construction, the Designated Biologist shall maintain written records of the tasks described above, and summaries of these records shall be submitted along with the Monthly Compliance Reports to the CPM. During project operation, the Designated Biologist shall submit record summaries in the Annual Compliance Report.

BIO-4 The project owner s Construction Manager shall act on the advice of the Designated Biologist to ensure conformance with the Biological Resources Conditions of Certification.

Protocol: The project owner s Construction Manager shall halt, if necessary, all construction activities in areas specifically identified by the Designated Biologist as sensitive to assure that potential significant biological resource impacts are avoided.

The Designated Biologist shall:

1. Inform the project owner and the Construction Manager when to resume construction, and

2. Advise the CPM if any corrective actions are needed or have been instituted.

Verification: Within two (2) working days of a Designated Biologist notification of non-compliance with a Biological Resources Condition of Certification or a halt of construction, the project owner shall notify the CPM by telephone of the circumstances and actions being taken to resolve the problem or the non-compliance with a condition. For any necessary corrective action taken by the project owner, a determination of success or failure will be made by the CPM within five (5) 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.

BIO-5 To minimize impacts to sensitive species and their habitat during construction of the expected 700 new oil production wells, steam injection wells, and appurtenant facilities within the _-mile radius zone of influence of the SCPP, the project owner will establish a Memorandum of Understanding or similar document between Sunrise and the oil field developer, Texaco California International s (TCI), which will contain TCI s commitment to implement the Best Management Practices and take avoidance measures listed in the BLM s San Joaquin Valley Oil and Gas Opinion Heavy Oil Density Requirements (BLM 1996) to minimize impacts to the San Joaquin kit fox, their dens, and their habitat. These Best Management Practices and take avoidance measures will be implemented within the _-mile radius oil production area for BLM leaseholds as well as on private leaseholds as identified as well development areas.

Protocol:

1. Habitat surveys will be completed to locate San Joaquin kit fox dens.

2. Surveys will be completed to look for natal, known, and potential dens.

3. 200-foot buffer around the proposed area of construction will also be surveyed.

4. Natural lands and habitat features will be avoided as practicable. Previously disturbed sites will be utilized whenever practicable.

5. Specific San Joaquin kit fox protection measures will be followed.

6. Natural drainage patterns will be maintained to the greatest extent practicable.

7. Large drainages containing saltbush and other native shrubs will be avoided to the greatest extent practicable.

8. The speed limit on unpaved roads not maintained by the county, shall be a maximum of 25 mph, in order to minimize wildlife casualties.

9. All spills of hazardous materials within endangered species habitats shall be cleaned up immediately.

10. Listed species shall be protected from the hazards posed by oil sumps. All exposed oil sumps shall be screened or eliminated. All screening of sumps shall meet the following specifications: 1) be not greater than 2-inch nominal mesh; 2) be of sufficient strength to restrain entry of wildlife; and 3) be supported in such a manner so as to prevent contact with the sump fluid. Oil sumps shall be designed, constructed, and maintained so they are not a hazard to people, livestock, or wildlife, including birds. Oil sumps shall be filled with earth after removal of harmful materials.

11. Law enforcement personnel and biologists from the California Energy Commission, California Department of Fish and Game, and the U. S. Fish and Wildlife Service shall be given complete access to the project area to review monitoring and mitigation activities.

12. Project activities that are likely to cause the amount or extent of take to be exceeded shall cease immediately.

13. The wildlife protection measures being implemented for listed species shall be extended to candidate and proposed species in the project area to the maximum extent practicable.

14. Restoration will be required when a project or lease is abandoned. Restoration will be encouraged for unused portions of the project area or oil and gas lease. The BLM will be contacted for specific restoration requirements upon project completion.

Verification: No later than 30 days prior to start of any project-related ground disturbing activities for the SCPP, SCPC will provide, to the CPM, a copy of the Memorandum of Understanding or similar document that is established between SCPC and TCI that documents TCI s commitment to implement the above-mentioned kit fox take avoidance measures during the development of the 700 new oil production and steam injection wells. The commitment document will include the name and qualifications of the TCI Designated Biologist to implement the Best Management Practices and take avoidance measures. The TCI Designated Biologist qualifications shall be comparable to those identified in Condition of Certification **BIO-2**. Survey protocols, mitigation measures, and a copy of the TCI commitment document will be included in the SCPC Biological Resources Mitigation Implementation and Monitoring Plan. During the construction phase of 700 wells and associated development, SCPC will include in its annual reports copies of TCI s survey reports and a discussion of the mitigation measures that were implemented pursuant to the Memorandum of Understanding or other commitment document. For a complete list of what must be included in the mitigation and monitoring plan, see Condition of Certification **BIO—9**

WORKER ENVIRONMENTAL AWARENESS PROGRAM

BIO-6 The project owner shall develop and implement a CPM approved Worker Environmental Awareness Program in which each of its employees, as well as employees of contractors and subcontractors who work on the project site or related facilities during construction and operation, are informed about sensitive biological resources associated with the project.

Protocol: The Worker Environmental Awareness Program must:

1. Be developed by the Designated Biologist and consist of an on-site or training center presentation in which supporting written material 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; and

5. Identify whom to contact if there are further comments and questions about the material discussed in the program.

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

Each participant in the on-site Worker Environmental Awareness Program shall sign a statement declaring that the individual understands and shall abide by the guidelines set forth in the program materials. The person administering the program shall also sign each statement.

Verification: At least 60 days prior to the start of rough grading, the project owner shall provide copies of the Worker Environmental Awareness Program and all supporting written materials prepared by the Designated Biologist and the name and qualifications of the person(s) administering the program to the CPM for approval. The project owner shall state 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. The signed statements for the construction phase shall be kept on file by the project owner and made available for examination by the CPM for a period of at least six (6) months after the start of commercial operation. During project operation, signed statements for active project operational personnel shall be kept on file for the duration of their employment and for six (6) months after their termination.

CALIFORNIA DEPARTMENT OF FISH & GAME INCIDENTAL TAKE PERMIT

BIO-7 Prior to start of any ground disturbance activities, the project owner shall acquire an Incidental Take Permit from CDFG in accordance with Section 2081(b) of the California Fish and Game Code and implement the permit terms and conditions.

Verification: No less than five (5) days prior to the start of any project related ground disturbance activities, the project owner shall submit to the CPM a copy of the final CDFG Incidental Take Permit. Permit terms and conditions will be incorporated into the Biological Resources Mitigation Implementation and Monitoring Plan. See also Condition of Certification **BIO-9**.

U. S. FISH & WILDLIFE SERVICE SECTION 7 BIOLOGICAL OPINION

BIO-8 Prior to the start of any ground disturbance activities, the project owner shall provide a final copy of the Biological Opinion in accordance with Section 7 of the federal Endangered Species Act obtained from the U. S. Fish and Wildlife Service and incorporate the terms of the opinion into the Biological Resources Mitigation Implementation and Monitoring Plan. The project owner will implement the terms and conditions contained in the federal Biological Opinion.

Verification: At least 60 days prior to the start of any project related ground disturbance activities, the project owner shall submit to the CPM a copy of the Biological Opinion. Permit terms and conditions will be incorporated into the Biological Resources Mitigation Implementation and Monitoring Plan. See also Condition of Certification **BIO-9**.

BIOLOGICAL RESOURCES MITIGATION IMPLEMENTATION & MONITORING PLAN

BIO-9 The project owner shall submit to the CPM for review and approval a copy of the final Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) and shall implement the measures identified in the plan. Any changes made to the adopted BRMIMP must be made in consultation with the CEC as well as with the Bureau of Land Management and the U. S. Fish and Wildlife Service.

Protocol: The final BRMIMP shall identify:

1. All mitigation, monitoring, and compliance conditions included in the Commission s Final Decision;

2. All sensitive biological resources to be impacted, avoided, or mitigated by project construction, operation and closure;

3. All mitigation measures provided in the USFWS Biological Opinion and the CDFG Incidental Take Permit;

4. All required mitigation measures for each sensitive biological resource;

5. Required habitat compensation, including provisions for acquisition, enhancement and management, for any temporary and permanent loss of sensitive biological resources;

6. As an appendix, the Memorandum of Understanding or similar commitment document required by Condition of Certification **BIO-5** detailing avoidance measures to be implemented during construction of the 700 new oil production wells, steam injection

wells, and appurtenant facilities) that will be implemented to avoid and/or minimize impacts to San Joaquin kit fox as well as other sensitive species from oil and steam field construction activities;

7. All locations, on a map of suitable scale, of laydown areas and areas requiring temporary protection and avoidance during construction;

8. Aerial photographs of all areas to be disturbed during project construction activities - one set prior to site disturbance and one set subsequent to completion of mitigation measures. Include planned timing of aerial photography and a description of why times were chosen;

9. Duration for each type of monitoring and a description of monitoring methodologies and frequency;

10. Performance standards to be used to help decide if/when proposed mitigation is or is not successful;

11. All performance standards and remedial measures to be implemented if performance standards are not met;

12. A discussion of biological resource-related facility closure measures; and

13. A process for proposing plan modifications to the CPM and appropriate agencies for review and approval.

14. Terms and conditions of a CDFG Streambed Alteration Agreement, if necessary.

Verification: At least 60 days prior to start of any project-related ground disturbance activities, the project owner shall provide the CPM with the final version of the BRMIMP for this project, and the CPM will determine the plans acceptability within 15 days of receipt of the final plan. All modifications to the approved BRMIMP must be made only after consultation with CEC, BLM and USFWS. The project owner shall notify the CPM five (5) working days before implementing any CPM approved modifications to the BRMIMP.

Within 30 days after completion of project construction, the project owner shall provide to the CPM for review and approval, a written report identifying which items of the BRMIMP have been completed, a summary of all modifications to mitigation measures made during the project s construction phase, and which mitigation and monitoring plan items are still outstanding.

HABITAT COMPENSATION

BIO-10 To compensate for temporary and permanent, direct and indirect, impacts to sensitive wildlife habitat, the project owner will provide a cashier s check for $655,100 to the Center for Natural Lands Management. Additional funds may be required if additional habitat is disturbed beyond that identified in this Final Staff Assessment.

Verification: Within one (1) week of project certification, the project owner must provide written verification to the CPM that the required compensation funds have been provided to CNLM.

Within 180 days after completion of project construction, the project owner shall provide the CPM aerial photographs taken after construction and an analysis of the amount of any additional habitat disturbance beyond that identified in the Energy Commission Final Staff Assessment. The CPM will notify the project owner of any additional funds required to compensate for any additional habitat disturbances at the adjusted market value at the time of construction to acquire and manage habitat.

FACILITY CLOSURE

BIO-11 The project owner will incorporate into the planned permanent or unexpected permanent closure plan measures that address the local biological resources. The biological resource facility closure measures will also be incorporated into the Sunrise project BRMIMP. (See Condition of Certification **BIO-9**, above.)

Protocol: The planned permanent or unexpected permanent closure plan will require the following biological resource-related mitigation measures:

1. Removal of transmission conductors when they are no longer used and useful;

2. Removal of all power plant site facilities; and

3. Measures to restore wildlife habitat to promote the re-establishment of native plant and wildlife species.

Verification: At least 12 months (or a mutually agreed upon time) prior to the commencement of closure activities, the project owner shall address all biological resource-related issues associated with facility closure in a Biological Resources Element. The Biological Resources Element will be incorporated into the Facility Closure Plan, and include a complete discussion of the local biological resources and proposed facility closure mitigation measures.

B. CULTURAL RESOURCES

This section discusses cultural resources, defined as including the structural and cultural evidence of the history of human development and life on earth. These resources assist in the understanding of our culture, our history, and our heritage. The spatial relationships between an undisturbed resource site and the surface environmental resources and features, as well as the analysis of the locational context of the resource materials within the site and beneath the surface, provide information that can be used to determine the sequence of past human occupation and use of an area.

The term cultural resources refers generally to those resources which are typically placed in one of three categories: prehistoric archaeological resources; historic archaeological resources; and ethnographic resources. The first category refers to those resources relating to the prehistoric human occupation and use of an area; they typically include sites, deposits, structures, artifacts, rock art, trails, and other traces of human behavior. Historic archaeological resources are those materials usually associated with Euro-American exploration and settlement of an area, as well as the beginning of a written historical record. Such resources include deposits, sites, structures, traveled ways, artifacts, documents, or other indicia of human activity. Ethnographic resources, such as traditional collecting areas, ceremonial sites, topographic features, cemeteries, shrines, or ethnic neighborhoods and structures, are those materials important to the heritage of a particular ethnic or cultural group such as Native Americans, or African, European, or Asian immigrants.

SUMMARY AND DISCUSSION OF THE EVIDENCE

The Sunrise Cogeneration and Power Project is proposed for a site located in the Midway-Sunset Oilfield at the southwest margin of the San Joaquin Valley. Native Americans such as the Yokurts and Chumash first occupied the area for

approximately 8,000 to 10,000 years. Later the area was inhabited by European explorers, missionaries, and holders of Mexican land grants. More recent occupation has been by those associated with oilfield development and agriculture. (10/12/99 RT 142; Ex. 23, pp. 193-196.)

While much of the area for the Sunrise project and its related facilities has already been disturbed, new construction activities associated with the project present the potential for adverse impacts to cultural resources because of the additional surface and subsurface ground disturbance involved. (1012/99 RT 142; Ex. 23, p. 204.) To assess the potential for encountering significant cultural resources during construction, Applicant performed an archival search of the general area to ascertain known cultural resource sites. The search involved reviewing archaeological, ethnographic, geologic/soils, and historical literature and archival materials and records searches at the Southern San Joaquin Valley Information Center of the California Historical Resources Information System. Applicant also inquired of the Native American Heritage Commission regarding Sacred Lands in the project vicinity, coordinated with the Bureau of Land Management and conducted in-field archaeological surveys. (10/12/99 RT 128, 143; Ex. 22, pp. Cultural Resources 1-2.)

Applicant s witness, Thomas L. Jackson, testified that while no prehistoric or historic cultural resources or cultural resources of concern to Native Americans are known in the area of the proposed plant site, such resources may be found along the project s transmission line route. He stated that there are 11 known archeological sites that could be affected by project construction on transmission corridor B unless the sites are avoided. (*Id.*) Staff witness Kaththryn M. Matthews stated that often the determination of whether or not an historical resource is significant under the California Environmental Quality Act (CEQA) cannot be made until the resource is actually encountered during construction. (10/12/99 RT 143.)

The evidence establishes that the preferred mitigation for impacts to cultural resources is avoidance of the resource. In addition, Applicant has proposed, and Commission staff has refined, Conditions of Certification which include: preconstruction structural location avoidance measures, construction monitoring, coordination with Native Americans, significance evaluation, mitigation of unavoidable impacts, and training procedures for dealing with unanticipated discoveries of cultural resources. The evidence establishes that the Conditions of Certification, which incorporate the measures proposed both by staff and Applicant will reduce to a level of less than significant the project s potential for adverse impacts on the region s cultural resources including prehistoric, historic, and ethnographic resources. (10/12/99 RT 129, 144; Ex. 22, Ex. 23, p. 217.)

FINDINGS AND CONCLUSIONS

Based upon the evidence of record, we find and conclude as follows:

1. Cultural resources exist in the general project area.

2. Construction activities associated with the Sunrise Cogeneration and Power Project and its related facilities present the most likely potential for adverse impacts to cultural resources.

3. The evidence establishes the likelihood that significant historical resources exist in areas which may be disturbed by project construction.

4. Construction-related disturbance to historical resources would likely have a significant impact if not mitigated.

5. Adverse impacts may be satisfactorily mitigated by implementation of appropriate mitigation measures.

6. The Conditions of Certification listed below contain measures that will ensure that construction of the Sunrise Cogeneration Power Project and its related facilities will not create significant direct, indirect, or cumulative adverse impacts to cultural resources.

7. Implementation of the Conditions of Certification below will assure that the Sunrise Cogeneration and Power Project will comply with all applicable laws, ordinances, regulations, and standards pertaining to cultural

resources set forth in the appropriate portion of Appendix A of this Decision.

We therefore conclude that the Sunrise Cogeneration and Power Project will not create any significant direct, indirect, or cumulative adverse impacts to cultural resources.

CONDITIONS OF CERTIFICATION

CUL-1 Prior to the start of project-related construction activities (defined as any construction-related vegetation clearance; ground disturbance and preparation or site excavation activities), the project owner shall provide the California Energy Commission (Commission) Compliance Project Manager (CPM) with the name and statement of qualifications for its designated cultural resource specialist who will be responsible for implementation of all cultural resources Conditions of Certification.

Protocol: The statement of qualifications for the designated cultural resource specialist shall include all information needed to demonstrate that the specialist meets the minimum qualifications set forth below, including the following:

a. A graduate degree in anthropology, archaeology, California history, cultural resource management, or a comparable field;

b. At least three years of archaeological resource mitigation and field experience in California; and

c. At least one year s experience in each of the following areas:

d. Leading archaeological resource field surveys;

e. Leading site and artifact mapping, recording, and recovery operations;

f. Marshalling and use of equipment necessary for cultural resource recovery and testing;

g. Preparing recovered materials for analysis and identification;

h. Determining the need for appropriate sampling and/or testing in the field and in the lab;

i. Directing the analyses of mapped and recovered artifacts;

j. Completing the identification and inventory of recovered cultural resource materials; and

k. Preparing appropriate reports to be filed with the receiving curation repository, the State Office of Historic Preservation (SHPO), and all appropriate regional archaeological information center(s).

The statement of qualifications for the designated cultural resource specialist shall include:

a. A list of specific projects the specialist has previously worked on;

b. The role and responsibilities of the specialist for each project listed; and

c. The names and phone numbers of contacts familiar with the specialist s work on these referenced projects.

Verification: At least ninety (90) days prior to the start of project construction, the project owner shall submit the name and statement of qualifications of its designated cultural resource specialist to the CPM for review and written approval.

At least ten (10) days but no more than thirty (30) days prior to the start of construction, the project owner shall confirm in writing to the CPM that the approved designated cultural resource specialist will be available at the start of construction and is prepared to implement the cultural resource Conditions of Certification.

At least ten (10) days prior to the termination or release of a designated cultural resource specialist, the project owner shall obtain CPM approval of the replacement specialist by submitting to the CPM the name and resume of the proposed new designated cultural resource specialist.

CUL-2 Prior to the start of project construction, the project owner shall provide the designated cultural resource specialist and the CPM with maps and drawings issued for the construction site plan and site layout, and for the final alignment of all linear facilities. The routes for the linear facilities shall be provided on 7.5-minute quad maps, showing:

a. Post mile markers (including tic marks for tenths of a mile);

b. Final center lines and right-of-way boundaries; and

c. The location of all the various areas where surface disturbance may be associated with project-related access roads, storage yards, laydown sites, pull sites, pump or pressure stations, switchyards, electrical tower or pole footings, and any other project components.

Verification: The designated cultural resource specialist may request, and the project owner shall provide, enlargements of portions of the 7.5 minute maps presented as a sequence of strip maps (or other acceptable format approved by the designated specialist) for the linear facility routes. The strip maps would include post mile and tenth of a mile markers and show the detailed locations of proposed access roads, storage or laydown sites, tower or pole footings, and any other areas of disturbance associated with the construction and maintenance of project-related linear facilities. The project owner shall also provide copies of any such enlargements to the CPM at the same time as they are provided to the specialist.

Verification: At least seventy-five (75) days prior to the start of construction on the project, the project owner shall provide the designated cultural resource specialist and the CPM with final drawings and site layouts for all project facilities and maps at appropriate scale(s) for all areas potentially affected by project construction. If the designated cultural resource specialist requests enlargements or strip maps for linear facility routes, the project owner shall also provide a set of these maps to the CPM at the same time that they are provided to the specialist.

CUL-3 Prior to the start of project construction, the designated cultural resources specialist shall prepare, and the project owner shall submit to the CPM for review and written approval, a Cultural Resources Monitoring and Mitigation Plan (CRMMP), identifying general and specific measures to minimize potential impacts to sensitive cultural resources.

Protocol: The Cultural Resources Monitoring and Mitigation Plan shall include, but not be limited to, the following elements and measures:

a. A proposed research design that includes a discussion of questions that may be answered by the mapping, data and artifact recovery conducted during monitoring and mitigation activities, and by the post-construction analysis of recovered data and materials.

b. A discussion of the implementation sequence and the estimated time frames needed to accomplish all project-related tasks during the pre-construction, construction, and post-construction analysis phases of the project.

c. Identification of the person(s) expected to perform each of the tasks; a description of each team member s qualifications and their responsibilities; and the reporting relationships between project construction management and the mitigation and monitoring team.

d. A discussion of the need for Native American observers or monitors, the procedures to be used to select them, the areas or post-mile sections where they will be needed, and their role and responsibilities.

e. A discussion of measures such as flagging or fencing, to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during construction and/or operation, and identification of areas where these measures are to be implemented. The discussion shall address how these measures will be implemented prior to the start of construction and how long they will be needed to protect the resources from project-related effects.

f. A discussion of where monitoring of project construction activities is deemed necessary by the designated cultural resource specialist. The specialist will determine the size or extent of the areas where monitoring is to occur and will establish the percentage of the time that the monitor(s) will be present.

g. A discussion of the requirement that all cultural resources encountered will be recorded and mapped (may include photos) and all significant or diagnostic resources will be collected for analysis and eventual curation into a retrievable storage collection in a public repository or museum that meets the standards and requirements for the curation of cultural resources set forth at Title 36 of the Federal Code of Regulations, Part 79.

h. A discussion of the availability and the designated specialist s access to equipment and supplies necessary for site mapping, photographing, and recovering any cultural resource materials encountered during construction.

i. Identification of the public institution that has agreed to receive any data and cultural resources recovered during project-related monitoring and mitigation work. Discussion of any requirements, specifications, or funding needed for the materials to be delivered for curation and how they will be met. Also include the name and phone number of the contact person at the institution.

Verification: At least sixty (60) days prior to the start of construction on the project, the project owner shall provide the Cultural Resources Monitoring and Mitigation Plan, prepared by the designated cultural resource specialist, to the CPM for review and written approval.

CUL-4 Prior to the start of project construction, the designated cultural resources specialist shall prepare an employee training program. The project owner shall submit the cultural resources training program to the CPM for review and written approval.

> Protocol: The training program shall discuss the potential to encounter cultural resources in the field, the sensitivity and importance of these resources, and the legal obligations to preserve and protect such resources.

The training program shall also include the set of resource reporting procedures and work curtailment procedures that workers are to follow if previously unknown cultural resources are encountered during project activities. The training program shall be presented by the designated cultural resource specialist or qualified individual(s) approved by the CPM and may be combined with other training programs prepared for biological resources, paleontologic resources, hazardous materials, or any other areas of interest or concern.

Verification: At least sixty (60) days prior to the start of construction on the project, the project owner shall submit to the CPM for review and written approval, the proposed employee training program, the set of reporting procedures, and the work curtailment procedures that the workers are to follow if previously unknown cultural resources are encountered during construction. The project owner shall provide the name and resume of the individual(s) performing the training.

CUL-5 Prior to the start of construction and throughout the project construction period as needed for all new employees, the project owner shall ensure that the designated cultural resource trainer(s) provide(s) the CPM-approved cultural resources training to all project managers, construction supervisors, and workers. The project owner shall ensure that the designated trainer provides the workers with the CPM-approved set of procedures for reporting any sensitive resources that may be discovered during project-related ground disturbance and the work curtailment procedures that the workers are to follow if previously unknown cultural resources are encountered during construction.

Verification: Within seven (7) days after the start of construction the project owner shall provide the CPM with documentation that the designated cultural resources trainer(s) has/have provided to all project managers, construction supervisors, and workers hired before the start of construction the CPM-approved cultural resources training and the set of reporting and work curtailment procedures.

In each Monthly Compliance Report after the start of construction the project owner shall provide the CPM with documentation that the designated cultural resource trainer(s) has/have provided to all project managers hired in the month to which the report applies, the CPM-approved cultural resources training and the set of resource reporting and work curtailment procedures.

CUL-6 The designated cultural resource specialist or the specialist s delegated monitor(s), shall have the authority to halt or redirect construction if previously unknown cultural resource sites or materials are encountered during project-related grading, augering, excavation and/or trenching.

If such resources are found and the specialist determines that they are not significant, the specialist may allow construction to resume. The project owner shall notify the CPM of the find as set forth in the Verification.

If such resources are found and the specialist determines that they are or may be significant, the halting or redirection of construction shall remain in effect until:

- The designated cultural resources specialist has notified the CPM of the find and the work stoppage;
- The specialist, the project owner, and the CPM have conferred and determined what, if any, data recovery or other mitigation is needed; and
- Any necessary data recovery and mitigation has been completed.

The designated cultural resources specialist, the project owner, and the CPM shall confer within five working days of the notification of the CPM to determine what, if any, data recovery or other mitigation is needed.

If data recovery or other mitigation measures are required, the designated cultural resource specialist and team members shall monitor construction activities and implement data recovery and mitigation measures, as needed.

All required data recovery and mitigation shall be completed expeditiously unless all parties agree to additional time.

Verification: Thirty (30) days prior to the start of construction, the project owner shall provide the CPM with a letter confirming that the designated cultural resources specialist and delegated monitor(s) have the authority to halt construction activities in the vicinity of a cultural resource find.

For any cultural resource encountered that the specialist determines is or may be significant, the project owner shall notify the CPM as soon as possible.

For any cultural resource encountered that the specialist determines is not significant, the project owner shall notify the CPM within 72 hours after the find.

CUL-7 Prior to the start of construction and each week throughout project construction (the period involving any ground disturbing activities, including landscaping), the project owner shall provide the designated cultural resource specialist with a current schedule of anticipated project activity for the next two months and a map indicating the area(s) where the construction activities will occur. The designated cultural resources specialist shall consult daily with the project superintendent or construction field manager to confirm the area(s) to be worked on the next day(s).

Verification: Ten (10) days prior to the start of construction involving ground disturbing activities and in each Monthly Compliance Report the project owner shall provide the CPM with copies of the schedules and maps provided to the designated cultural resource specialist.

CUL-8 Throughout the pre-construction reconnaissance surveys and the construction monitoring and mitigation phases of the project, the designated cultural resources specialist or delegated monitor(s) shall keep a daily log of any resource finds and the progress or status of the resource monitoring, mitigation, preparation, identification, and analytical work being conducted for the project. The daily logs shall indicate by tenths of a post mile, where and when monitoring has taken place, where monitoring has been deemed unnecessary, and where cultural resources were found.

The designated specialist shall prepare a weekly summary of the daily logs on the progress or status of cultural resource-related activities.

The designated resource specialist and delegated monitor(s) may informally discuss the cultural resource monitoring and mitigation activities with Commission technical staff.

Verification: Throughout the project construction period, the project owner shall ensure that the daily log(s) and the weekly summary reports prepared by the designated cultural resource specialist and delegated monitor(s) are available for periodic audit by the CPM. Upon request by the CPM, the project owner shall provide specified weekly summary reports to the CPM.

CUL-9 The designated cultural resource specialist or delegated monitor(s) shall be present at times the specialist deems appropriate to monitor construction-related grading, excavation, trenching, and/or augering in the vicinity of previously recorded archaeological sites and in areas where cultural resources have been identified.

> Protocol: If the designated cultural resource specialist determines that full-time monitoring is not necessary in certain portions of the project area or along portions of the linear facility routes, the designated specialist shall notify the project owner of the changes. The designated cultural resource specialist shall use milepost markers and boundary stakes placed by the project owner to identify areas where monitoring is being reduced or is no longer deemed necessary.

Verification: Throughout the project construction period the project owner shall include in the Monthly Compliance Reports to the CPM copies of the weekly summary reports prepared by the designated cultural resource specialist regarding project-related cultural resource monitoring.

CUL-10 The project owner shall ensure that the designated cultural resource specialist obtains and maintains a current BLM Archaeological Resource Use Permit to gain access to lands managed by the USBLM or other federal agencies, to conduct any surveys, monitoring, data and/or artifact recovery activities on these lands. This use permit is to be obtained from the area office of the BLM in Bakersfield, California, no less than ten (10) days prior to the start of cultural resource activities governed by the permit.

Verification: The project owner shall provide the CPM and the designated BLM representative(s) with a copy of the BLM archaeological resource use permit received by the designated cultural resource specialist, in the next Monthly Compliance Report following its receipt or renewal.

CUL-11 The project owner shall ensure that the designated cultural resource specialist meets the professional qualifications specified by the BLM; that the Cultural Resources Monitoring and Mitigation Plan prepared per Energy Commission Condition **CUL-5**, also reflects BLM requirements for a Archaeological Resource Treatment Plan; and that all surveys, monitoring, and data and/or artifact recovery activities implemented during the construction and operation of the Sunrise project, meet the requirements of the BLM and the Energy Commission.

Verification: The project owner shall concurrently provide the designated BLM representative(s) with copies of all information submitted to the CPM in response to Energy Commission conditions of certification. The project owner shall provide the CPM with current copies of BLM permit conditions and requirements; the criteria and requirements for the designation of a cultural resource specialist; the contents of its Archaeological Resource Treatment Plan; and any other requirements pertinent to the protection of cultural resources potentially affected by the Sunrise project. In each Monthly Compliance Report, the project owner shall provide the CPM with a summary outlining the measures it has taken to ensure that it has met both BLM and Energy Commission requirements.

CUL-12 The project owner shall ensure that the designated cultural resource specialist performs the recovery, preparation for analysis, analysis, preparation for curation, and delivery for curation of all cultural resource materials encountered and collected during pre-construction surveys and during the monitoring, data recovery, mapping, and mitigation activities related to the project.

Verification: The project owner shall maintain in its compliance files, copies of signed contracts or agreements with the museum(s), university(ies), or other appropriate research specialists which will ensure the necessary recovery, preparation for analysis, and analysis of cultural resource materials collected during data recovery and mitigation for the project. The project owner shall maintain these files for the life of the project and the files shall be kept available for periodic audit by the CPM. Information as to the specific location of sensitive cultural resource site shall be kept confidential and accessible only to qualified cultural resource specialists.

CUL-13 Following completion of data recovery and site mitigation work the project owner shall ensure that the designated cultural resources specialist prepares a proposed scope of work for the Cultural Resources Report. The project owner shall submit the proposed scope of work to the CPM for review and written approval.

Protocol: The proposed scope of work shall include (but not be limited to):

a. A discussion of any analysis to be conducted on recovered cultural resource materials;

b. discussion of possible results and findings;

c. proposed research questions which may be answered or raised by analysis of the data recovered from the project; and

d. An estimate of the time needed to complete the analysis of recovered cultural resource materials and prepare the Cultural Resources Report.

Verification: The project owner shall ensure that the designated cultural resources specialist prepares the proposed scope of work within ninety (90) days following completion of the data recovery and site mitigation work. Within seven (7) days after completion of the proposed scope of work, the project owner shall submit it to the CPM for review and written approval.

CUL-14 The project owner shall ensure that the designated cultural resources specialist prepares a Cultural Resources Report. The project owner shall submit the report to the CPM for review and written approval.

Protocol: The Cultural Resources Report shall include (but not be limited to) the following:

a. For all projects:

- A description of pre-project literature search, surveys, and any testing activities;
- Maps of showing areas surveyed or tested;
- Adescription of any monitoring activities;
- Maps of any areas monitored; and
- Conclusions and recommendations.

b. For projects in which cultural resources were encountered, include the items specified under a and also provide:

- Site and isolate records and maps;
- A description of testing for, and determinations of, significance and potential eligibility; and
- A discussion of the research questions answered or raised by the data from the project.

c. For projects regarding which cultural resources were recovered, include the items specified under a and b and also provide:

- Descriptions (including drawings and/or photos) of recovered cultural materials;
- Results and findings of any special analyses conducted on recovered cultural resource materials;
- An inventory list of recovered cultural resource materials; and
- Name and location of the public repository receiving the recovered cultural resources for curation.

Verification: The project owner shall ensure that the designated cultural resources specialists completes the Cultural Resources Report within ninety (90) days following completion of the analysis of the recovered cultural materials. Within seven (7) days after completion of the report, the project owner shall submit the Cultural Resources Report to the CPM for review and written approval.

CUL-15 The project owner shall submit an original, an original-quality copy, or a computer disc copy of the CPM-approved Cultural Resource Report to the public repository to receive the recovered data and materials for curation, to the SHPO, and to the appropriate regional archaeological information center(s). If the report is submitted to any of these entities on a computer disc, the disc files must meet SHPO requirements for format and content.

Protocol: The copies of the Cultural Resource Report to be sent to the curating repository, the SHPO, and the regional information center(s) shall

include the following (based on the applicable scenario (a, b, or c) set forth in the previous condition):

a. Originals or original-quality copies of all text;

b. Originals of any topographic maps showing site and resource locations;

c. Originals or original-quality copies of drawings of significant or diagnostic cultural resource materials found during pre-construction surveys or during project-related monitoring, data recovery, or mitigation; and

d. photographs of the site(s) and the various cultural resource materials recovered during project monitoring and mitigation and subjected to post-recovery analysis and evaluation. The project owner shall provide the curating repository with a set of negatives for all of the photographs.

Verification: Within thirty (30) days after receiving approval of the Cultural Resources Report, the project owner shall provide to the CPM documentation that the report has been sent to the public repository receiving the recovered data and materials for curation, the SHPO, and the appropriate archaeological information center(s).

For the life of the project the project owner shall maintain in its compliance files copies of all documentation related to the filing of the CPM-approved Cultural Resources Report with the public repository receiving the recovered data and materials for curation, the SHPO, and the appropriate archaeological information center(s).

CUL-16 Following the filing of the CPM-approved Cultural Resource Report with the appropriate entities, the project owner shall ensure that all cultural resource materials, maps and data collected during data recovery and mitigation for the project are delivered to a public repository that meets the US Secretary of Interior requirements for the curation of cultural resources. The project owner shall pay any fees for curation required by the repository.

Verification: The project owner shall ensure that all recovered cultural resource materials are delivered for curation within thirty (30) days after providing the CPM-approved Cultural Resource Report to the public repository receiving the recovered data and materials, to the SHPO, and to the appropriate archaeological information center(s).

For the life of the project the project owner shall maintain in its project history or compliance files, copies of signed contracts or agreements with the public repository to which the project owner has delivered for curation all cultural resource materials collected during data recovery and mitigation for the project.

CUL-17 Prior to final design, during the spotting of potential locations for the electric transmission poles along Route B, between MP 5 and MP 6, and from MP19 to MP 25, the project owner shall do the following:

1. Spot the pole locations and design the transmission line, in the area between MP 5 and MP 6, to span sensitive cultural resource site areas or design the system to enter the existing Midway-Sunset facility without the installation of transmission line poles.

2. In the areas between MP 5 to MP 6 and MP 19 to MP 25: if it is not possible to span potential cultural resource sites, the cultural resource specialist will survey each area where the ground may be disturbed by transmission pole construction. The survey will determine whether the site represents potentially significant cultural resources, with intact stratigraphy, or dispersed scatters not regarded as scientifically significant.

3. To determine the presence or absence of cultural resources, the cultural resources specialist will conduct a detailed surface examination of an area 100 feet in diameter around the pole site. If cultural materials are determined to be present, the designated cultural resource specialist will conduct an excavation at the center of the pole site. The preferred means of excavation will include a hand excavation 1-meter by 1-meter using archaeological methods and techniques. However, if deemed appropriate by the cultural resource specialist, the excavation may be conducted using auger or backhoe.

4. If sensitive cultural resources are located in situ, the pole site shall be moved to a new location where there are no sensitive cultural resources present. If it is not possible to move the pole site, the designated cultural resources specialist will apply the mitigation measures outlined previously in these conditions.

5. At the discretion of the designated cultural resource specialist, in areas where human remains may be unearthed, a representative of the Native American Community shall be requested to be on site during excavations and earth disturbing activities.

Verification: The project owners shall include information about the activities related to this condition in the summary of the designated cultural resource specialist s daily log submitted to the CPM.

CUL-18 To minimize impacts to cultural resources during the construction of the expected 700 new oil production wells, steam injection wells and appurtenant facilities within the _-mile radius zone of influence of the Sunrise Cogeneration and Power Project, the project owner shall enter into a Memorandum of Understanding or other legally binding agreement with the oil field developer TCI

whereby TCI and any successors or assignees agree to implement the following measures for the non-Federal areas within the _-mile radius zone.

a. TCI shall utilize the Cultural Resource Specialist selected by Sunrise and as approved by the Energy Commission s CPM under the provision of **CUL-1**. TCI shall be responsible for carrying out the activities listed below and the Cultural Resources Specialist shall be allowed access to the non-Federal areas within the _-mile zone of influence.

1. Preparation and implementation of a training program for construction supervisors which covers the potential to encounter cultural resources, the sensitivity and importance of such resources and the applicable obligations to preserve and protect such resources.

2. Preparation of procedures for notification and reporting of encounters with potentially significant cultural resources during well development activities.

3. Evaluation of the significance of cultural resources encountered

4. Ensuring avoidance of potentially significant resources once encountered until the cultural resources specialist can assess the significance of the resource.

5. Implementating appropriate mitigation for cultural resources determined to be significant if avoidance of the resource is determined to be infeasible by the Cultural Resources Specialist.

b. The Cultural Resource Specialist shall prepare reports on encounters with cultural resources and will file copies of these reports with the oil field operator, Sunrise, SHPO, regional information center, and the CPM.

Verification: At least thirty (30) days prior to the start of construction activities for the Sunrise Cogeneration and Power Project, Sunrise shall provide to the CPM a copy of the Memorandum of Understanding or other legally binding agreement with TCI regarding implementing measures a.1. through 5. and b. set forth in Condition of Certification **CUL-18**.

Sunrise shall include in the Annual Compliance Report copies of all encounter reports filed by the Cultural Resource Specialist under subsection b. above.

C. GEOLOGICAL AND PALEONTOLOGICAL RESOURCES

This section addresses the project s potential impacts on geological hazards, geological and paleontological resources, and surface water hydrology. Paleontological resources include the fossilized remains or trace evidence of prehistoric plants or animals, which are preserved in soil or rock. These fossils are scientifically important because they help document the evolution of particular groups of organisms and the environment in which they lived.

The purpose of the geological and paleontological analysis is to verify that the applicable laws, ordinances, regulations, and standards (LORS) have been identified and that the project can be designed and constructed in accordance with all applicable LORS, and in a manner that protects environmental quality and assures public health and safety.

SUMMARY AND DISCUSSION OF THE EVIDENCE

Sunrise is located in the Midway-Sunset Oil Field, in western Kern County. Geology at the site is made up of alluvial sands and silts. The electric transmission line corridors B and F cross alluvium, the Tulare Formation, the Etchegoin Formation, the Santa Margarita Formation, the Belridge Diatomite, the Monterey Shale and the McLure Shale. The soil overlying most of the power plant footprint area has been disturbed. The site slope gradient is very shallow, so the potential for slope stability problems is remote. Groundwater at the site is in excess of 300 feet below existing grade. (Ex. 22, Ex. 23, p. 167.)

No active faults are known to cross the proposed power plant footprint. The project is located within seismic zone 4.[84] The San Andreas Fault Zone is located approximately 7.2 miles southwest of the proposed site. The potential for

[84] As delineated on Figure 16-2 of the 1998 edition of the California Building Code.

surface ground rupture at the power plant location is negligible since there are no known faults at the site. Applicant has indicated that there are three fault traces that either cross or intersect the electric transmission line corridor designated B , however, the fault traces are not active. Applicant s evidence revealed that the project site poses a low risk of liquefaction and that any risks of hydrocompaction will be minimized at the plant site because no large volumes of water will be released at or near the site. In addition, the power plant, while proposed for location in an active oil field, will not interfere with the recovery of oil and gas resources. (Ex. 22,[85] Ex. 23, p. 284.)

Applicant s studies of the paleontological resources of the project area revealed sensitive rock units that have yielded the fossilized remains of late Cenozoic marine and continental invertebrate and vertebrate species at sites in or very near the project area. Direct impacts to these resources could result from grading, trenching, auguring and other earth-moving activities that disturb fossiliferous rock, making it unavailable for future scientific investigation. The loss of fossil remains, unrecorded fossil sites and fossil-bearing rock is a potentially significant long-term environmental impact. However, staff determined that no paleontological resources have been identified at the power plant site or along the transmission line corridor. (10/12/99 RT 118.)

Significant indirect impacts could result if easier access to fresh exposures of fossiliferous rock leads to unauthorized collection by construction personnel, rock hounds, and other collectors. Cumulative impacts could occur if the construction of the Sunrise Project, in combination with the construction of other planned-for power plant projects in the area, leads to a progressive loss of fossil-bearing rock. (Ex. 22[86]) Staff determined that impacts to surface water hydrology will be limited to a minor, insignificant increase in surface water drainage off-site. (Ex. 23, p. 285.)

[85] Testimony - Geologic Resources and Hazards submitted by Thomas F. Cudzilo, Ph.D.
[86] Testimony - Paleontological Resources by E. Bruce Lander, Ph.D.

Applicant and the Commission staff addressed these potential impacts by agreeing to a comprehensive set of mitigation measures contained in the Staff s revised Conditions of Certification. (10/12/99 RT 117, 118; Ex. 23, pp. 286-292.) The evidence of record is undisputed that with these Conditions of Certification the project will avoid or mitigate any potential significant impacts to geological and paleontological resources. (10/12/99 RT 123.)

FINDINGS AND CONCLUSIONS

Based upon the uncontroverted evidence of record, we find and conclude as follows:

1. Geological and paleontological resources exit in the project area.

2. Construction and ground disturbance activities associated with the construction of the Sunrise Cogeneration and Power Project can potentially impose direct, indirect, and cumulative impacts to paleontological resources.

3. The Sunrise Cogeneration and Power Project will have no significant adverse impact on geological resources.

4. The Sunrise Cogeneration and Power Project will have no significant adverse impact on surface hydrology.

5. Mitigation measures required by the Conditions of Certification will assure that the activities associated with the Sunrise Cogeneration and Power Project will cause no direct, indirect, or cumulative adverse impacts to paleontological resources.

6. Implementation of the Conditions of Certification will ensure that the project is constructed and operated in compliance with applicable laws, ordinances, regulations, and standards identified in the appropriate portion of Appendix A of this Decision.

We therefore conclude that the project will not cause any significant adverse direct, indirect, or cumulative impacts to geological or paleontological resources.

CONDITIONS OF CERTIFICATION

GEO-1 Prior to the start of construction, the project owner shall assign to the project an engineering geologist(s), certified by the State of California, to carry out the duties required by the 1998 edition of the California Building Code (CBC) Appendix Chapter 33, Section 3309.4. The certified engineering geologist(s) assigned must be approved by the CPM (the functions of the engineering geologist can be performed by the responsible geotechnical engineer, if that person has the appropriate California license).

At least 30 days (or a lesser number of days mutually agreed to by the project owner and the Kern County Chief Building Official (CBO) prior to the start of construction, the project owner shall submit to the CPM the name(s) and license number(s) of the certified engineering geologist(s) assigned to the project. The submittal should include a statement that CPM approval is needed. The CPM will approve or disapprove of the engineering geologist(s) and will notify the project owner of its findings within 15 days of receipt of the submittal. If the engineering geologist(s) is subsequently replaced, the project owner shall submit for approval the name(s) and license number(s) of the newly assigned individual(s) to the CPM. The CPM will approve or disapprove of the engineering geologist(s) and will notify the project owner of the findings within 15 days of receipt of the notice of personnel change.

GEO-2 The assigned engineering geologist(s) shall carry out the duties required by the 1998 CBC, Appendix Chapter 33, Section 3309.4 — Engineered Grading Requirement, and Section 3318.1 - Final Reports. Those duties are:

1. Prepare the Engineering Geology Report. This report shall accompany the Plans and Specifications when applying to the CBO for the grading permit. The report and project Plans and Specifications shall also be submitted to the Energy Commission s CPM at the same time that the report submittal is made to the CBO.

2. Monitor geologic conditions during construction.

3. Prepare the Final Engineering Geology Report.

The Engineering Geology Report required by the 1998 CBC, Appendix Chapter 33, Section 3309.3 - Grading Designation, shall include an adequate description of the geology of the site, conclusions and recommendations regarding the effect of geologic conditions on the proposed development, and an opinion on the adequacy, for the intended use, of the site as affected by geologic factors.

The Final Engineering Geology Report to be completed after completion of grading, as required by the 1998 CBC, Appendix Chapter 33, Section 3318.1,

shall contain a final description of the geology of the site and any new information disclosed during grading, and a description of the effect of same on recommendations incorporated in the approved grading plan. The engineering geologist shall submit a statement that, to the best of his or her knowledge, the work within their area of responsibility is in accordance with the approved Engineering Geology Report and applicable provisions of this chapter.

Verification: (1) Within 15 days after submittal of the application(s) for grading permit(s) to the CBO, the project owner shall submit a signed statement to the CPM stating that the Engineering Geology Report has been submitted to the CBO as a supplement to the plans and specifications and that the recommendations contained in the report are incorporated into the plans and specifications. (2) Within 90 days following completion of the final grading, the project owner shall submit copies of the Final Engineering Geology Report required by the 1998 CBC, Appendix Chapter 33, Section 3318 - Completion of Work, to the CPM and the CBO.

GEO-3 The project owner shall submit a linear facility (transmission lines and utility lines) development plan, addressing any actions to be undertaken by the project owner to ensure no hazard or problems will be created with the existing wells in the construction site and laydown areas, to the Department of Conservation, Division of Oil and Gas, and Geothermal Resources (DOGGR) for review and comment. The linear facility development plan shall include a discussion of how a minimum setback from existing oil wells is to be maintained.

Verification: At least sixty (60) days prior to the start of construction, the project owner shall submit to the CPM a copy of DOGGR s letter commenting on the linear facility development plan. Within fifteen days (15) days of the receipt of the development plan and the DOGGR comment letter on the plan, the CPM will either approve or comment and deny the plan, and transmit the approval or denial letter to the project owner.

PAL-1 Prior to the start of any project-related construction activities (defined as any construction-related vegetation clearance, ground disturbance and preparation, and site excavation activities), the project owner shall ensure that the designated paleontological resources specialist approved by the CPM is available for field activities and prepared to implement the conditions of certification.

The designated paleontological resources specialist shall be responsible for implementing all the paleontological Conditions of Certification and for using qualified personnel to assist in this work.

Protocol: The project owner shall provide the CPM with the name and statement of qualifications for the designated paleontological resources specialist.

The statement of qualifications for the designated paleontological resources specialist shall demonstrate that the specialist meets the following minimum qualifications: a degree in paleontology or geology or paleontological resource management; and at least three years of paleontological resource mitigation and field experience in California, including at least one year s experience leading paleontological resource mitigation and field activities.

The statement of qualifications shall include a list of specific projects the specialist has previously worked on; the role and responsibilities of the specialist for each project listed; and the names and phone numbers of contacts familiar with the specialist s work on these referenced projects.

If the CPM determines that the qualifications of the proposed paleontological resources specialist do not conform with the above requirements, the project owner shall submit another individual s name and qualifications for consideration.

If the approved, designated paleontological resources specialist is replaced prior to completion of project mitigation, the project owner shall obtain CPM approval of the new designated paleontological resources specialist by submitting the name and qualifications of the proposed replacement to the CPM, at least ten (10) days prior to the termination or release of the preceding designated paleontological resources specialist.

Should emergency replacement of the designated specialist become necessary, the project owner shall immediately notify the CPM to discuss the qualifications of its proposed replacement specialist.

Verification: Ninety (90) days prior to the start of construction, or a lesser period of time mutually agreed to by the project owner and the CPM, the project owner shall submit the name and resume and the availability for its designated paleontological resources specialist, to the CPM for review and approval. The CPM shall provide written approval or disapproval of the proposed paleontological resources specialist.

At least ten (10) days prior to the termination or release of a designated paleontological resources specialist, the project owner shall obtain CPM approval of the replacement specialist by submitting to the CPM the name and resume of the proposed new designated paleontological resources specialist. Should emergency replacement of the designated specialist become necessary, the

project owner shall immediately notify the CPM to discuss the qualifications of its proposed replacement specialist.

PAL-2 Prior to the start of project construction, the designated paleontological resources specialist shall prepare a Paleontological Resources Monitoring and Mitigation Plan that identifies general and specific measures to minimize potential impacts to sensitive paleontological resources, and submit this plan to the CPM for review and approval. After CPM approval, the project owner s designated paleontological resources specialist shall be available to implement the Monitoring and Mitigation Plan, as needed, throughout project construction.

In addition to the project owner s adoption of the guidelines of the Society of Vertebrate Paleontologists, dated 1996, the Paleontological Resources Monitoring and Mitigation Plan shall include, but not be limited to, the following elements and measures:

- A discussion of the sequence of project-related tasks, such as any pre-construction surveys, fieldwork, flagging or staking; construction monitoring; mapping and data recovery; fossil preparation and recovery; identification and inventory; preparation of final reports; and transmittal of materials for curation;

- Identification of the person(s) expected to assist with each of the tasks in this condition of certification and a discussion of the tasks and their responsibilities;

- Where monitoring of project construction activities is deemed necessary, the extent of the areas where monitoring is to occur and a schedule for the monitoring;

- An explanation that the designated paleontological resources specialist shall have the authority to halt or redirect construction in the immediate vicinity of a vertebrate fossil find until the significance of the find can be determined;

- A discussion of equipment and supplies necessary for recovery of fossil materials and any specialized equipment needed to prepare, remove, load, transport, and analyze large-sized fossils or extensive fossil deposits;

- Expeditious inventory, preparation, and delivery for curation into a retrievable storage collection in a public repository or museum, which meets the Society of Vertebrate Paleontologists standards and requirements for the curation of paleontological resources; and

- Identification of the institution that has agreed to receive any data and fossil materials recovered during project-related monitoring and mitigation work, discussion of any 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.

Verification: Sixty (60) days prior to the start of construction on the project, or a lesser period of time mutually agreed to by the project owner and CPM, the project owner shall provide the CPM with a copy of the Monitoring and Mitigation Plan prepared by the designated paleontological resources specialist for review and approval. If the plan is not approved, the project owner, the designated paleontological resources specialist, and the CPM shall meet to discuss comments and negotiate necessary changes.

PAL-3 Prior to the start of construction, and throughout the project construction period as needed for all new employees, the project owner and the designated paleontological resources specialist shall prepare and conduct CPM-approved training to all project managers, construction supervisors, and workers who operate ground disturbing equipment. The project owner and construction manager shall provide the workers with the CPM-approved set of procedures for reporting any sensitive paleontological resources or deposits that may be discovered during project-related ground disturbance.

Protocol: The paleontological training program shall discuss the potential to encounter fossil resources in the field, the sensitivity and importance of these resources, and the legal obligations to preserve and protect such resources.

The training shall also include the set of reporting procedures that workers are to follow if paleontological resources are encountered during project activities. The training program shall be presented by the designated paleontological resources specialist and may be combined with other training programs prepared for cultural and biological resources, hazardous materials, or any other areas of interest or concern.

Verification: Thirty (30) days prior to the start of project construction, or a lesser period of time mutually agreed to by the project owner and the CPM, the project owner shall submit to the CPM for review, comment, and written approval, the proposed employee training program and the set of reporting procedures the workers are to follow if paleontological resources are encountered during project construction.

If the employee training program and set of procedures are not approved, the project owner, the designated paleontological resources specialist, and the CPM shall meet to discuss comments and negotiate necessary changes, before the beginning of construction.

Documentation for training of additional new employees shall be provided in subsequent Monthly Compliance Reports, as appropriate.

PAL-4 The designated paleontological resources specialist shall be present at all times he or she deems appropriate to monitor construction-related grading, excavation, trenching, and/or augering in areas where potentially fossil-bearing sediments have been identified. If the designated paleontological resources specialist determines that full-time monitoring is not necessary in certain portions of the project area or along portions of the linear facility routes, the designated specialist shall notify the project owner.

Verification: The project owner shall include in the Monthly Compliance Reports a summary of paleontological activities conducted by the designated paleontological resources specialist.

PAL-5 The project owner, through the designated paleontological resources specialist, shall ensure recovery, preparation for analysis, analysis, identification and inventory, the preparation for curation, and the delivery for curation of all significant paleontological resource materials encountered and collected during the monitoring, data recovery, mapping, and mitigation activities related to the project.

Verification: The project owner shall maintain in its compliance files copies of signed contracts or agreements with the designated paleontological resources specialist and other qualified research specialists who will ensure the necessary data and fossil recovery, mapping, preparation for analysis, analysis, identification and inventory, and preparation for and delivery of all significant paleontological resource materials collected during data recovery and mitigation for the project. The project owner shall maintain these files for a period of three years after completion and approval of the CPM-approved Paleontological Resources Report and shall keep these files available for periodic audit by the CPM.

PAL-6 The project owner shall ensure preparation of a Paleontological Resources Report by the designated paleontological resources specialist. The Paleontological Resources Report shall be completed following completion of the analysis of the recovered fossil materials and related information. The project owner shall submit the paleontological report to the CPM for approval.

> Protocol: The report shall include, but not be limited to, a description and inventory list of recovered fossil materials; a map showing the location of paleontological resources encountered; determinations of sensitivity and significance; and a statement by the paleontological resources

specialist that project impacts to paleontological resources have been mitigated.

Verification: The project owner shall submit a copy of the Paleontological Resources Report to the CPM for review and approval under a cover letter stating that it is a confidential document. The report is to be prepared by the designated paleontological resources specialist within 90 days following completion of the analysis of the recovered fossil materials.

PAL-7 The project owner shall include in the facility closure plan a description regarding facility closure activity s potential to impact paleontological resources. The conditions for closure will be determined when a facility closure plan is submitted to the CPM twelve months prior to closure of the facility. If no activities are proposed that would potentially impact paleontological resources, then no mitigation measures for paleontological resource management are required in the facility closure plan.

Protocol: The closure requirements for paleontological resources are to be based upon the Paleontological Resources Report and the proposed grading activities for facility closure.

Verification: The project owner shall include a description of closure activities described above in the facility closure plan.

D. SOIL AND WATER RESOURCES

This portion of the Decision concentrates on the project s potential to induce erosion and sedimentation, adversely affect surface and groundwater supplies, degrade surface and groundwater quality, and increase the potential for flooding.[1]

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Soils

The Sunrise Cogeneration and Power Project site is located on a broad alluvial terrace sloping to the east. One small ephemeral drainage is present to the immediate north of the site. The majority of the soils present at the Sunrise project site consist of Guijarral gravely sandy loam with the small remaining portion belonging to the Wellport-Elkhills Association. The Guijarral gravely sandy loam is a very deep, very well drained soil. If undisturbed, this soil has a slight susceptibility to water erosion and a moderate susceptibility to wind erosion. The Wellport-Elkhills Association is also a well-drained soil but is found on steeper slopes than the Guijarral soil and is significantly shallower. If undisturbed, this soil has a moderate susceptibility to both water and wind erosion. (Ex. 89, p. 2.) Staff witness Joe O Hagan noted that the soil at the plant site, being a loam soil, would be high in silt content; he estimated up to 70 percent silt. He testified that soils more distant from the site would have lower levels of silt. (1/13/00 RT 297-298.)

[1] Staff s analysis of this topic area appears in Exhibits 89 and 92.

The soil found along the alternative transmission line routes are alluvial fan deposits, valley fill, lake sediments, or stream terraces formed on alluvial fans. Most soils are generally deep and well drained except for portions of the transmission line route, which cross steeper slopes where soils are generally shallow in depth. If undisturbed, the susceptibility of these soils to wind and water erosion ranges from slight to severe, depending upon the slope. (Ex. 89, pp. 2-3.)

The construction of the facility will disturb approximately 65 acres, of which 26 acres consist of soils at the Sunrise project site and laydown area. The remaining acres will primarily be disturbed during installation of structures associated with installation of the transmission line, access road improvements, and the switchyard. Additional soil disturbance will be caused by installation of above ground piping for natural gas, steam, and the heat recovery steam generator (HRSG) feedwater and wastewater interconnections.

Applicant and staff agreed to a series of mitigation measures, which include the creation of a detailed Erosion Control Plan prior to beginning construction. This plan will include measures for surface soil protection during construction such as the use of mulches, synthetic netting material and the installation of a sediment detention basin on the downgrade edge of the project site. Also prior to clearing or excavation, the project will develop a Storm Water Pollution Prevention Plan (SWPPP) as required in Condition of Certification **SOIL&WATER-1**.

Uncontested evidence in the record established that the project will comply with all laws, ordinances, regulations and standards in this area. and will not create any unmitigated direct, indirect or cumulative environmental impacts related to soils. (Ex. 89, p. 15 as amended by Ex. 92; 1/13/00 RT 307-308.)

2. Water Supply

The design of the Sunrise project dramatically influences its impact on local water supplies. The project does not require an evaporative cooling tower and will be able to use and reuse produced water from the oil field, thus minimizing its consumptive fresh water use and its discharge of wastewater. (10/12/99 RT 40-41.)

The SCPP will obtain water for domestic, fire fighting and evaporative make-up uses from the West Kern Water District (WKWD). The source for this water is from wells located in the Tupman area. The project will connect to potable water lines used to supply the communities of Taft and McKittrick. WKWD s service to Sunrise will not adversely affect the district s water supply since the WKWD that demands on district water will decrease in the future as oil field operations decrease. Demand for district water has decreased generally over the last 25 years and declined significantly between 1984 and 1999. The district also has banked water supplies, which it can rely upon during drought conditions. (Ex. 89, p. 7-8.) Thus the SCPP will not impact local fresh water supplies.

The Sunrise project proposes to use an average of 5.0 million gallons per day (mgd) of treated produced water to generate steam in the plant s heat recovery steam generators (HRSGs). (Ex. 1, p. 8.14-8, Table 8.14-2.) The term produced water refers to generally brackish groundwater brought to the surface during oil and natural gas production. The oil field operator, Texaco California Inc. (TCI), will provide softened water to the Sunrise project as boiler feedwater for the project s HRSGs. Prior to reaching the SCPP, oil field produced water will be filtered and softened at an existing TCI water treatment facility two miles from the power plant site. Current capacity at the facility is 125,000 barrels per day (16-acre feet per day). To accommodate the Sunrise project, this capacity will be expanded to 275,000 barrels per day (35-acre feet per day). (Ex. 89, p. 7.)

Produced water is treated by removing entrained oil by air flotation, removing suspended solids by filtration units and reducing water hardness by using strong acid cation exchange water softeners. Incoming produced water averages 100-ppm solids and oil and 210-ppm hardness. After treatment the water contains an average of 1-ppm solids and oil with less than 2-ppm hardness. (*Id*.) The steam that is made in the Sunrise HRSGs from the produced water will be distributed to TCI through the TCI utility corridor. TCI will then use the steam by injecting it into oil bearing zones to thermally enhance its oil recovery operations in the Midway-Sunset oil field. (10/12/99 RT 29.)

Use of produced water by the Sunrise project will not adversely affect groundwater resources since produced water is not suitable for agriculture and is generally re-injected into the oil field aquifer. The SCPP s use of produced water thus avoids placing demands on freshwater supplies. (Ex. 89, p. 8.) The evidence of record is undisputed that the Sunrise project will comply with all applicable laws ordinances, regulations and standards and will not result in any significant adverse direct, indirect, or cumulative impact to water supplies. (Ex. 89, p. 15, as amended by Ex. 92; 1/13/00 RT 295, 305.)

3. Water Quality

The sole contested issue regarding soil and water resources concerned the characteristics of the produced water used by the project and of project wastewater streams. CURE contended in its testimony that these waters contain high concentrations of metals and are therefore hazardous materials. The Sunrise project proposes to merge its wastewaters with those routinely generated by the oil field operator and delivered to Valley Waste Disposal Company (Valley Waste) for permitted disposal. Valley Waste does not operate as a permitted hazardous waste facility. A permit is required to treat or dispose of hazardous materials under California law. Thus, if CURE could demonstrate

that the produced water or wastewater associated with the project would exceed hazardous threshold levels, the project would not comply with applicable law.

During the Commission s licensing proceeding CURE repeatedly attempted to obtain information from Applicant in order to determine whether the treatment of produced water for the project or the disposal of water treatment waste products such as regenerative brines would cause significant impacts or require a hazardous materials treatment or disposal permit.[2] (Ex. 103, p. 1.) Applicant did not provide the requested information until late in the Commission s process, and only after the Department of Toxic Substances showed interest in the matter.[3] (Ex. 90 and 91.)

At the evidentiary hearing of January 28, 2000, Applicant s witness Randall E. Marx explained Applicant s process for testing the wastewater streams in question. He testified that TCI performed sampling and analytical testing of four streams. The representative sampling was performed on two different days and was tested by three different state-certified laboratories. (1/13/00 RT 225; 1/28/00 RT 12, 22.) Each test showed results well below the hazardous waste thresholds and showed good correlation between results taken on different days. (1/28/00 RT 12, 23.)

[2] On March 9, 1999, CURE filed a data request to determine if produced water or regenerative brine requires a hazardous materials or disposal permit. Applicant failed to provide the information and on June 6, 1999, CURE reiterated its request and sought additional information. CURE filed a Motion to Compel Production of Information (Motion) on July 23, 1999. Applicant opposed the Motion and on August 20, 1999, staff advised the Committee that the information regarding Valley Waste was publicly available. However, after further investigation and consultation with DTSC, Staff determined that the information was not available. Staff then issued data requests on the matter to Sunrise on September 28, 1999. Applicant responded to the data requests on January 6, 2000. (Ex. 91.)

[3] Letter from Larry Matz, Chief statewide Compliance Division, DTSC to Sunrise AFC Committee dated December 22, 1999, docketed December 31, 1999.

Diane Peebler, representing DTSC[4] testified that she reviewed the test results, found nothing suspect about them, and that the data provided by Sunrise was in the form and level of detail usually relied upon by DTSC. (1/13/00 RT 222, 224, 225-226.) She stated that the concentrations were very low compared to hazardous waste thresholds and that DTSC had concluded that none of the wastestreams contained hazardous waste. She testified that as a result of the test results, DTSC has no jurisdiction over the wastestreams resulting from TCI s processing of produced water. (1/13/00 RT 221.) Commission staff relied upon the expertise of DTSC in this matter and determined that the produced water and wastewater stream associated with the project will have no significant adverse impact on the environment and will comply with applicable laws, ordinances, regulations and standards concerning water quality. (1/13/ RT 297.)

Following the evidentiary hearing of January 13, 2000, CURE submitted additional data requests to Applicant. Sunrise responded to the questions in a timely manner and at the hearing on January 28, 2000, CURE challenged the sampling methods and test results used by Sunrise and submitted to DTSC. CURE presented the testimony of Dr. Phyllis Fox (Ex. 103, 105) and Dr. Bruce Page (Ex. 104) who offered expert opinion that the water samples submitted by Sunrise were taken at the wrong location in the treatment process and should have shown metal concentrations in amounts 64 times higher than those found in the inlet stream. (Ex. 104, pp. 2—3; Ex. 105, pp. 2-3; 1/28/00 RT 34-39, 44, 67-68.)

[4] Ms. Peebler is the Acting Chief of the Resource Recovery Section of the Department of Toxic Substances Control. (DTSC). DTSC is the agency with jurisdiction over hazardous waste in the State of California.

In addition, CURE presented data from a comprehensive literature search, which, according to CURE witnesses, demonstrates the likelihood that produced water concentrations may exceed regulatory levels for benzene, nickel, selenium, mercury, and lead. CURE also argues that design data from vendors suggests concentrations of cadmium, lead, and mercury may exceed regulatory levels in Valley Waste s regeneration brine (Ex. 103, pp. 2-8.) CURE also presented calculated data as the basis for asserting that concentrations of benzene in produced water and lead in the brine regeneration stream exceed allowed regulatory levels and are hazardous. (Ex. 105, pp. 3-4.)

COMMISSION DISCUSSION

First, the Commission must point out that much of the delay and last minute taking of evidence regarding water quality questions stems from Applicant s initial unwillingness and/or inability to provide requested information in a timely manner. Once Applicant provided credible data regarding the quality of project-related produced water and wastewater streams, the record began to develop.

The testimony by Diane Peebler of DTSC makes clear that credible test results from state-certified laboratories, gathered and submitted using protocols approved by DTSC found all water samples to be well below the threshold for hazardous wastes and for DTSC jurisdiction. (1/13/00 221.) This position was supported by testimony of experts for both Applicant and Staff. (1/28/00 RT 12; 1/13/00 RT 221.) Based on that testimony, we are able to find that the produced water and wastewater in question is nonhazardous. As a result, the use of these water sources by the Sunrise project is in conformance with applicable laws, ordinances, regulations and standards.

Furthermore, the efforts of the CURE witnesses to undermine the credibility of the test results submitted to DTSC were not persuasive. CURE s calculations and literature searches are less convincing than the actual samples introduced

by the Applicant and found acceptable by DTSC. In fact, Applicant s witness, a former DTSC employee, testified that DTSC does not accept calculated data based on hypothesis over actual, measured data.[5] (1/28/00 RT 19, 20.) CURE s witness also argued that, contrary to Applicant s testimony, the concentration of cationic metals in the regeneration brine should be over 64 times higher than in the Softener Inlet according to design data. (Ex. 104, p. 4.) However, while disagreeing with CURE s calculation, Applicant presented uncontested testimony which convincingly demonstrated that when the analytical results of the Softener Inlet water sample are multiplied by 64, the levels for each constituent would still be below hazardous waste thresholds. (1/28/00 RT 21.)

Finally, CURE s witnesses challenged Applicant s water sampling techniques, arguing that samples were taken from a nonrepresentative part of the waste process. However, the more persuasive evidence was provided by Applicant s witness who explained the nature of produced water and its separation into valuable products which are reused, rather than discarded. (Ex. 91.) Thus, the first time the stream may become a waste is after all recoverable oil is removed and it is ready for softening. (1/28/00 RT 16-17; 74-75.)

We conclude that DTSC, the agency designated to determine the presence of hazardous materials, was provided valid test samples on which it based its determination that project-related produced water and wastewater streams are nonhazardous. We therefore find that the project will not create a significant water quality impact and can comply with applicable laws, ordinances, regulations and standards.

[5] Applicant s witness R. Casagrande also testified that state regulations rely on actual samples over calculated results. (1/28/00 RT 78.)

FINDINGS AND CONCLUSIONS

Based upon the evidence of record, we find and conclude as follows:

1. Soils in the project area are susceptible to wind and water erosion.

2. The Conditions of Certification below will ensure that soil and water erosion does not create significant adverse environmental impacts.

3. The proposed Sunrise project will obtain water for domestic, fire fighting and evaporative make-up uses from the West Kern Water District.

4. Project-related use of water from the West Kern Water District will not have a significant impact on potable water supplies.

5. The Sunrise Cogeneration and Power Project will use an average of 5.0 million gallons per day of treated produced water to generate steam in the plant s heat recovery steam generators.

6. The evidence of record demonstrates that produced water to be used for the Sunrise Cogeneration and Power Project is not hazardous.

7. The Sunrise Cogeneration and Power Project will dispose of its wastewater through Valley Waste Disposal Company.

8. The record demonstrates that wastewater streams discharged to Valley Waste Disposal Company are not hazardous.

9. The wastewater disposal method for the project will not cause or significantly contribute to any direct, indirect or cumulative environmental impacts.

10. The Conditions of Certification below will ensure that the Sunrise Cogeneration and Power Project will comply with the applicable laws, ordinances, regulations, and standards identified in the appropriate portion of Appendix A of the Decision.

We therefore conclude that construction and operation of the Sunrise Cogeneration and Power Project will create no significant direct, indirect, or cumulative adverse impacts to soil or water resources.

CONDITIONS OF CERTIFICATION

SOIL&WATER 1 Prior to beginning any clearing, grading or excavation activities associated with project construction, the project owner will develop and implement a Storm Water Pollution Prevention Plan (SWPPP).

Verification: Two weeks prior to the start of construction, the project owner will submit to the Energy Commission Compliance Project Manager (CPM) a copy of the Storm Water Pollution Prevention Plan (SWPPP).

SOIL&WATER 2 Prior to the initiation of any earth moving activities, the project owner shall submit an erosion control and revegetation plan for staff approval. The final plan shall contain all the elements of the draft plan with changes made to address the final design of the project.

Verification: The final erosion control and revegetation plan shall be submitted to the Energy Commission CPM for approval 30 days prior to the initiation of any earth moving activities.

E. WASTE MANAGEMENT

The project will generate hazardous and non-hazardous wastes during construction and operation. This section reviews Applicant s waste management plans to reduce the risks and environmental impacts associated with the handling, storing, and disposing of project-related wastes.

Federal and state laws regulate the management of hazardous waste. Hazardous waste generators must obtain EPA identification numbers, and use only permitted treatment, storage, and disposal facilities. Registered hazardous waste transporters must handle the transfer of hazardous waste to disposal facilities.

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Site Excavation

Excavation activities may expose construction workers to hazardous metals or organics in the soil. Applicant commissioned a Phase I Environmental Site Assessment (ESA) to determine whether the site had been contaminated by industrial uses. (Ex. 1, p. 8.13-1.)

The ESA covered an 80-acre parcel containing the site. About 90 percent of the property is open, unoccupied rangeland covered with dry grass and scrub vegetation. Two inactive aboveground storage tanks lie just north of the project site. Outside the northeast corner of the site is a storage and recycling area containing debris, such as piping, wire, filters, concrete rubble, empty storage tanks and recyclable materials, such as scrap metal, wood, paper, plastic, and tires. Approximately 15 active and inactive oil wells are located on the site. In the southwest corner of the property are three newly drilled oil wells and associated sumps. The north central portion of the site has an equipment

storage and staging area which contains concrete rubble and soil piles, some of which exhibit oil staining. In addition to the soil piles, stained soil was observed at a number of locations, including several of the oil production wells and in the bottom of the main drainage channel that transects the site.

The Phase 1 ESA (see Ex. 1, Appendix G) found that certain features of the site contain recognized environmental conditions, but are typical of petroleum production properties. These include sumps used for the containment of drilling fluid and wastes used during drilling operations and occasional leakage commonly associated with petroleum pipelines. While three sumps associated with new wells in the southwest corner of the site were identified, sumps relating to other wells were no longer evident and residual drilling wastes may still be present. The ESA further concluded that oil impacted soil will likely be encountered during earthwork activities relating to facility construction and that buried pipelines in the area (whose locations are currently unknown) could be sources of further contamination. The ESA recommended establishing a contingency plan to provide for (1) testing subsurface soils prior to construction to locate and quantify contaminated soil and (2) properly managing such soils encountered during construction. Staff recommended that such a contingency plan be included within the Waste Management Plan referred to in Condition of Certification **WASTE-3**.

Even though Applicant has commissioned a Phase II ESA for the site, a certified environmental professional should be available to provide guidance during project construction in the event contaminated soil is encountered. This professional is provided for in Condition of Certification **WASTE-4**.

2. Construction

Hazardous wastes that may be generated during construction include waste oil and grease, paint, spent solvent, welding materials, contaminated soil, and cleanup materials from spills of hazardous substances. (Ex. 23, p. 236.) These materials will be temporarily stored onsite in containers prior to transportation by a licensed hazardous waste disposal service to a recycling or disposal facility. (Ex. 1,/8.13.2.1; Ex. 23, p. 236.) Table 8.13-1 of Exhibit 1 lists construction-related hazardous wastes and the quantity that the Sunrise project expects will be generated.

The project will generate approximately 40 cubic yards per week of non-hazardous solid waste during construction, including debris, excess concrete, lumber, scrap metal, insulation, packaging, paper, wood, glass, plastic, and empty non-hazardous chemical containers. (Ex. 1,/8.13.2.1.) These wastes will be segregated for recycling, if practicable; non-recyclable wastes will be placed in a covered Dumpster for transport to a Class II or III landfill.[92] (*Ibid.)*

3. Operation

Hazardous wastes generated during routine project operation include cleaning solutions, spent air pollution control catalyst, used lubricating oil, sandblast media, used cleaning solvents, waste paint and thinner, natural gas filters, lead-acid batteries, contaminated cleanup materials, and empty chemical containers. (Ex. 23, p. 237.) Table 8.13-3 of Exhibit 1 lists operation-related hazardous wastes and the quantity that SCPC expects will be generated. Materials that cannot be recycled will be transported to a Class I landfill. The spent air pollution

[92] Non-recyclable, nonhazardous waste, will be disposed of at one of four Class III landfills owned and operated by the Kern County Waste Management Department. Cumulatively, the landfills have remaining disposal capacities totaling over 18 million cubic yards and estimated closure dates up to 2076. Staff concluded that the amount of wastes generated during project construction and operation are insignificant relative to existing disposal capacity, and would not meaningfully impact landfill operations. (Ex. 23, p. 236.)

control catalyst typically will be returned to the manufacturer for refurbishment or disposal. (*Id.*)

Nonhazardous wastes accumulated during operation would include trash, office wastes, empty containers, broken or used parts, used packing material, and used filters. Waste such as paper, cans, and plastic will be recycled to the extent possible, and the remainder disposed of on a regular basis at a Class III landfill. (Ex. 23, p. 236.)

4. Wastewater

During construction, wastewater generated at the construction sites will include sanitary wastes, and may include stormwater runoff and equipment washwater. (Ex. 1,／8.13.) Stormwater runoff will be handled appropriately according to the general industrial permit that will be obtained before construction begins. (*Id.*) Sanitary wastes will be collected in portable chemical toilets and transported by licensed contractors to a wastewater treatment facility. Equipment washwater will be collected and contained in specially designated areas and will be recycled where feasible or removed form the site for appropriate treatment and disposal.

During operation, wastewater generated at the construction sites will include sanitary wastes, combustion turbine washwater, surface water runoff, and evaporative cooler blowdown. (Ex. 1,／8.13.) Uncontaminated surface water runoff will drain to drainage ditches and will be directed off site to natural drainage. Sanitary wastes will be routed to an on-site septic tank and leach field. Off-line turbine generator washwater will be collected and contained in an underground tank with other wastewater and will later be disposed of through the Valley Waste system. (*Id.*)

5. Potential Impacts on Waste Disposal Facilities

The quantities of nonhazardous materials generated during construction and operation are insignificant relative to existing landfill disposal capacity. (Ex. 23, p. 237.) Hazardous waste is accepted at three Class I landfills in California,[93] all of which have more than enough capacity to receive the project s hazardous waste that is not recycled. (*Id.*)

COMMISSION DISCUSSION

The evidence was uncontroverted that hazardous wastes generated by the project will be managed in accordance with applicable law. The parties further agree that, to the extent possible, recyclable hazardous and nonhazardous wastes would be recycled. Consequently, the amount of waste generated by the project will have no significant impact on the available disposal facilities and landfills. The Commission determines that the construction and operation of the project will not result in any significant adverse impacts if the Sunrise Cogeneration and Power Project implements the Conditions of Certification set forth below.

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

1. The project will generate hazardous and non-hazardous wastes during construction and operation.

2. Excavation activities may expose construction workers to hazardous metals or organics in the soil.

[93] Chemical Waste Management s Kettleman Hills Facility (Kings County); Safety-Kleen Environmental Service s facilities in Buttonwillow (Kern County), and Westmoreland (Imperial County). These have a total remaining capacity of over 20 million cubic yards, with anticipated remaining lifetimes of up to 90 years. (Ex. 23, p. 237.)

3. Under Applicant s waste management plan, the project will recycle hazardous and nonhazardous wastes to the extent possible and in compliance with applicable law.

4. Hazardous wastes that cannot be recycled, will be transported by registered hazardous waste transporters to one of the three California Class I landfills.

5. Nonhazardous wastes that cannot be recycled will be disposed at nearby Class II or Class III landfills.

6. The Sunrise Cogeneration and Power Project, either alone or in combination with the four other potential power plant projects in the same area, will not create quantities of hazardous or nonhazardous construction or operational wastes sufficient to create a significant adverse impact upon available Class I or Class III landfills.

7. Applicant s stormwater management plan will control stormwater runoff in conformance with applicable law.

8. Wastewater will be recycled or disposed of through the TNAP wastewater line connected to the Valley Waste system which has sufficient capacity to accommodate the additional volume from the Sunrise project and related new production wells.

9. Due to the availability of hazardous and nonhazardous waste disposal facilities, and the relatively inconsequential amount of waste generated by the project, potential impacts to existing facilities will be insignificant.

10. With implementation of the Conditions of Certification listed below, the project will conform with all applicable laws, ordinances, regulations, and standards relating to waste management as identified in the pertinent portions of APPENDIX A of this Decision.

CONDITIONS OF CERTIFICATION

WASTE-1 The project owner shall obtain a hazardous waste generator identification number from the Cal EPA Department of Toxic Substances Control prior to generating any hazardous waste.

Verification: The project owner shall keep its copy of the identification number on file at the project site and notify the CPM via the monthly compliance report of its receipt.

WASTE-2 The project owner, upon becoming aware of any waste management-related enforcement action taken or proposed to be taken against it, or against any waste hauler or disposal facility or treatment operator with which it contracts, shall notify the CPM.

Verification: The project owner shall notify the CPM in writing within 10 days of becoming aware of an impending enforcement action.

WASTE-3 Prior to the start of both construction and operation, the project owner shall prepare and submit to the CPM a waste management plan, including revisions based on the CPM s comments, for all wastes generated during construction and operation of the facility, respectively. 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, 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 60 days prior to the start of construction, or a lesser time as mutually agreed upon by the project owner and the CPM, the project owner shall submit the construction waste management plan to the CPM for review. The operation waste management plan shall be submitted no less than 60 days prior to the start of project operation, or a lesser time as mutually agreed upon by the project owner and CPM. The project owner shall submit any required revisions within 30 days of notification by the CPM (or mutually agreed upon date). In the Annual Compliance Reports, the project owner shall document the actual waste management methods used during the year compared to planned management methods.

WASTE-4 The project owner shall have an environmental professional (as defined by American Society for Testing and Materials (ASTM), Practice E 1527-97 Standard Practice for Phase I Environmental Site Assessments) available during soil excavation activities. The environmental professional shall advise the Construction Manager on identifying potentially contaminated soils. The Construction Manager will contact the environmental professional if potentially contaminated soil is unearthed during excavation at either the proposed site or linear facilities as evidenced by discoloration, odor, or other signs. Prior to any further construction activity at that location, the environmental professional 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 stating the

recommended course of action. If, in the opinion of the environmental professional, significant remediation may be required, the project owner shall contact representatives of the Kern County Environmental Health Services Department and the Sacramento regional office of the Cal EPA Department of Toxic Substances Control for guidance and possible oversight.

Verification: The project owner shall notify the CPM in writing within 5 days of any reports filed by the environmental professional, and indicate if any substantive issues have been raised.

VIII. LOCAL IMPACT ASSESSMENT

All aspects of a power plant project affect, in differing degrees, the community in which it is located. The effect of the various elements of a project upon the local area varies from case to case depending upon the nature and the extent of the community and of the associated impacts. In the present case, we believe the technical elements discussed in the portion of our Decision are those constituting the most likely areas of potential local concern.

A. LAND USE

The discussion of the land use impacts for the Sunrise Cogeneration and Power Project focuses on two main issues: the conformity of the project with local land use plans, ordinances, and policies; and the potential of the project to have direct, indirect, and cumulative conflicts with existing and planned uses. In general, a power plant project can be incompatible with existing or planned land uses when it creates unmitigated noise, dust, public health hazards or nuisances, traffic, or visual impacts, or when it significantly restricts existing or future uses.

SUMMARY AND DISCUSSION OF THE EVIDENCE

The Sunrise Cogeneration and Power Project is located within the Midway Sunset oil field, about three miles northwest of the community of Fellows and 2.5 miles south of Derby Acres. The vicinity of the site is heavily developed and used by petroleum companies for natural gas and oil production. Numerous petroleum recovery and storage facilities, electric and petroleum transmission facilities, and access roads characterize the area. There are no parks, recreational areas, educational, religious, agricultural uses, health care facilities, or commercial uses on the site or within a one-mile radius of the site. (Ex. 23, p. 65.) The existing land uses are summarized below.

Location or Linear Facility	Existing Land Uses
Sunrise Cogen and Power Plant	Undeveloped/Oil Wells/Abandoned Steam Units
Transmission Line Corridor (B,D,E,F)	BLM lands/ Lokern Natural Area/California Aqueduct/West Side Canal/ Kern County Flood Levee/Agricultural lands/Oil Production/Undeveloped/Residential/ PG&E Midway Substation
Steam Injection and Production Wells	Undeveloped/Oil Wells

The preferred transmission line route for the project includes two options (B and F) which follow the same corridor alignment and result in a direct interconnection to the Midway Substation in Buttonwillow. Several residences near the community of Buttonwillow and near Mirasol Avenue south of Buerkle Road are located within one-half mile of the transmission line corridor. (Ex. 23, p. 66.) No other sensitive receptors are located within the proposed corridor.

The project will occupy a 20 acre site to be leased from TCI. The site lies within an existing 80 acre parcel. Kern County has determined that, as a cogeneration facility, the project is permitted by right under the Kern County Zoning Ordinance, and therefore requires no discretionary permits from the county. Nevertheless, the physical layout of the project and the associated infrastructure would still have to comply with requirements in the Kern County Zoning Ordinance. These have been addressed in Condition of Certification **LAND USE 1**.

The transmission line corridor will contain a total of 175 transmission poles for the project. These poles will occupy approximately 0.35 acre of land. (Ex. 23, p. 68.) The project will comply with local Encroachment Guidelines by obtaining rights of way permits, complying with clearance requirements, tower and pole location restrictions and other relevant requirements. (Land Use testimony of Sheri Jodi Smith.)

Location or Linear Facility	Land Use Designation
Sunrise Cogen and Power Plant	Extensive Agricultural
Transmission Line Corridor	Extensive Agriculture/ Mineral and Petroleum
Steam Injection and Production Wells	Extensive Agriculture/ Mineral and Petroleum

The evidence of record establishes that the Sunrise project will not cause a significant change in the character of the affected area. At least three other projects (Sunrise, Elk Hills and Midway Sunset) may also terminate at the existing Midway substation. Commission staff witness Amanda Stennick testified that the Sunrise project would have no significant direct, indirect, or cumulative land use impacts. This is because neither the Sunrise nor the other nearby power projects will remove significant amounts of land from agricultural uses. In addition, the projects are all consistent with the existing land uses in the area. (10/14/99 RT 101; Ex. 23, p. 68.)

During the evidentiary hearing of October 14, 1999, controversy developed over the appropriate mitigation for visual impacts, and whether the Applicant could apply off-site mitigation in lieu of landscaping at the project site. (10/14/99 RT 114.) Subsequently, the Kern County Planning Department, in a December 16, 1999 letter, determined that due to the remoteness of, and lack of public exposure to the site, the County would not require on-site landscaping. Accordingly, the staff witness revised her testimony and the language of Condition of Certification **LAND USE-1**, to eliminate the landscaping requirement. A similar change was also made in the Conditions for visual impacts. (Exs. 87, 86.)

While the county has not required on-site landscaping from the Sunrise project, public comment at the Informational Hearing on March 18, 1999, expressed the opinion that street lamps or community lighting would be a benefit to the nearby

community of Derby Acres. (3/18/99 RT 49-50.) Both members of the Sunrise Committee explored this idea with Applicant and Staff at the evidentiary hearing of October 14, 1999. Applicant made clear that it considers itself a member of the broader community and that community improvements in the context of a siting case are not necessarily limited to improvements at the power plant site itself. (10/14/99 RT 108-110.) Applicant agreed that even though the project imposes no land use or visual impact which must be mitigated, it is willing to participate in some off-site measures to achieve a community benefit. (10/14/99 RT 140-141.)

The record is clear that in the La Paloma case, the project applicant agreed to provide off-site landscaping and maintenance at an elementary school near the project. (10/14/99 RT 142.) In this case, because of the interest in community lighting expressed by citizens of Derby Acres, we have added a condition requiring Applicant to provide an opportunity for such lighting. This is set forth in Condition of Certification **LAND USE-2**.

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FINDINGS AND CONCLUSIONS

Based upon the uncontroverted evidence of record, we find and conclude as follows:

1. The Sunrise Cogeneration and Power Project and its related facilities are permissible uses under the applicable Kern County zoning designations.

2. Construction and operation of the Sunrise Cogeneration and Power Project will not create conflicts with existing or planned land uses in the project vicinity.

3. The construction of the Sunrise Cogeneration and Power Project in conjunction with the La Paloma, Midway Sunset and Elk Hills projects will not have a significant adverse cumulative impact on land use in western Kern County.

4. The Condition of Certification below ensures that the project will be constructed and operated in compliance with the applicable laws, ordinances, regulations, and standards contained in the pertinent portion of Appendix A of this Decision.

We therefore conclude that the Sunrise Cogeneration and Power Project will not create any significant direct, indirect, or cumulative land use impacts.

CONDITIONS OF CERTIFICATION

LAND USE-1 Prior to the start of construction, the project owner shall submit a site plan for the project to Kern County for their review and comment, and to the California Energy Commission Compliance Project Manager (CPM) for review and approval. The site plan shall comply with all applicable provisions of Chapters 9.12, 19.86, and 19.82 of the Kern County Zoning Ordinance. The project owner shall provide a letter of comment from the Kern County Planning Director stating that the project is consistent with the provisions of the Kern County General Plan and Zoning Ordinance.

Protocol: The project owner shall submit to the CPM for review and approval a site plan. The project owner shall submit a letter from the Kern County Planning Director stating that the site plan conforms to Kern County's Zoning Code and has been approved by the County. If the CPM notifies the project owner that revisions of the plan are needed before the

CPM will approve the plan, the project owner shall prepare and submit to the CPM a revised plan.

Verification: At least 60 days prior to the start of any ground disturbance related to construction, the project owner shall submit a copy of the letter of comment from the Kern County Planning Director to the CPM for review and approval. The project owner shall submit any required revisions within 30 days of notification by the CPM.

LAND USE-2 Within 90 days of Commission certification, the project owner shall deposit in trust the sum of $150,000 to be used for street and/or public lighting in the community of Derby Acres. The money may be received by Kern County or by a Derby Acres community non-profit organization for the purchase and installation of low energy sodium vapor lighting in Derby Acres. After a period of three years from the date of deposit, any sums and accrued interest not used for such lighting shall revert to the project owner.

Verification: Within 90 days following the Commission Decision and any Commission reconsideration thereof, the project owner shall submit evidence that $150,000 has been placed in trust in accordance with the above Condition. The project owner shall include in routine compliance reports a description of the date, amount and purpose of any disbursements from the trust.

B. NOISE

The construction and operation of any power plant creates noise, or unwanted sound. The character and loudness of this sound, the times of day or night during which it is produced, and the proximity of the facility to sensitive receptors combine to determine whether a project noise will cause significant adverse impacts to the environment. In the licensing process, the Commission evaluates whether noise produced by project-related activities will be consistent with applicable noise control laws and ordinances.

In this portion of the Decision, we examine the likely noise impacts from the Sunrise Cogeneration and Power Project and the sufficiency of measures proposed to control them.

SUMMARY AND DISCUSSION OF THE EVIDENCE

The Kern County General Plan Noise Element provides the only local regulation of noise levels in the project area. The California Occupational Safety and Health Administration (Cal-OSHA) has promulgated Occupational Noise Exposure Regulations (Cal. Code of Regs., tit. 8, ⁄ 5095, et seq.) that set employee noise exposure limits. These standards are equivalent to the standards (29 CFR, ⁄ 1910.95) adopted by the Federal Department of Labor, Occupational Safety and Health Administration (OSHA) under the Occupational Safety and Health Act of 1970. (29 USC, ⁄ 651, et seq.) (See Ex. 23, p. 77-78; see also Ex. 1, ⁄ 8.5.1.)

The terrain at the site is a rolling benchland, sloping with increasing grade up to the range of mountains to the west, and with decreasing grade to Midway Valley on the east. The project site is in the midst of an industrial oil production landscape. It is surrounded primarily by oil production wells and associated machinery for over a mile in any direction (Ex. 1, ⁄ 8.5.2.1.) A few industrial

installations, permanent and temporary (mobile) offices, are dispersed around the site. The closest of these is approximately 200 feet north of the site. There are two houses adjacent to each other, on the east side of Highway 33, about 1.3 miles east of the site, on land owned by Chevron. These two houses are the nearest sensitive receptors to the site. The houses have active oil leases and crude oil storage tanks in close proximity. Their location, adjacent to Highway 33, subjects them to significant traffic noise as well. Although they appear to be zoned rural and could therefore be considered highly sensitive land uses under the Kern County General Plan Noise Element, the uncontroverted evidence establishes that this location already has impaired use with regard to noise because of the proximity to industrial and highway noise. These buildings will, therefore, be considered to be no more than a sensitive land use. (See Ex. 1,/8.5.2.1; Ex. 23, p. 79.) There are no schools, hospitals or other sensitive receptors within a 2-mile radius. This is the distance identified by staff as an area outside which construction and operation of a power plant project is not likely to cause noise impacts. (Ex. 23, p. 79.)

The evidence establishes that Applicant examined the prevailing noise environment and performed a noise survey at the nearest residential area, Derby Acres. (Ex. 1,//8.5.2.1, 8.5.2.2-8.5.2.4; Ex. 23, pp. 79-80.)

During its operating life, the power plant will emit a steady, continuous and broadband noise both day and night. Occasional short-term increases in noise level will occur as steam relief valves open to vent pressure, or during startup or shutdown. This operational noise level will have a maximum project impact at Derby Acres (the nearest sensitive receptor) of about 22.3 dBA. Compared to the ambient noise levels measured in Derby Acres, noise for the operation of the proposed project would be inaudible during all but the quietest period. The cumulative impact in Derby Acres of the maximum noise levels from the project (22.3 dBA) does not exceed the Kern County limit of 45 dBA for nighttime L_{50}. The nighttime L_{50} measured in Derby Acres was 43.2 dBA. With the addition of

the maximum L_{eq} predicted by the modeling, the nighttime L_{50} in Derby Acres would remain at 43.2 dBA. The L_{eq} impact from the project at the residences on Highway 33 is estimated to be 30.3 dBA. Adding the maximum L_{eq} predicted by the modeling, the nighttime L_{50} at the Highway 33 residences would not change. Although the existing and cumulative noise at the Highway 33 residences is above the Kern County desirable maximum $L_{50,}$ this 1.4 dBA increase would not be audible. These residences are also located outside the 5 dBA impact contour used by staff to determine whether noise impacts are significant. (See Ex. 23, p. 84.) Thus, power plant operations would likely be virtually inaudible. Similarly, operational noise from the transmission line is projected to be unnoticeable above the background levels. Administrative procedures and hearing protection measures will be employed to protect plant workers. (Ex. 23, p. 85.)

Construction of the power plant and the associated linear facilities will cause short-term noise impacts. General construction activities may result in noise emissions in the 75 to 85 dBA range, measured at a distance of 100 feet. While these noise levels could annoy nearby receptors, the evidence establishes that no single receptor should be subject to impacts for more than a few days. (Ex. 23, p. 82.)

Finally, the evidence indicates that the project is unlikely to impact adjacent development, or contribute to adverse cumulative impacts, due to the commercial and industrial nature of future development in the vicinity, as well as to the project's relatively low noise emissions. The uncontradicted evidence of record thus establishes that the project will represent an unobtrusive, nearly undetectable addition to existing sound levels at sensitive receptors. (Ex. 23, p. 83.) Any potential for residual noise impacts will be adequately mitigated by implementation of the Conditions of Certification below.

FINDINGS AND CONCLUSIONS

Based upon the uncontroverted evidence of record, we find and conclude as follows:

1. Construction and operation activities of the Sunrise Cogeneration Power Project will create noise.

2. The nearest sensitive receptors potentially affected by the project's operational noise are approximately one and one-third miles away.

3. The nearest sensitive receptors potentially affected by construction noise associated with the project are approximately one and one-third miles away.

4. Operational noise from the power plant under normal operating conditions will not increase the existing ambient noise levels experienced at the nearest sensitive receptors.

5. Construction activities associated with the project will be temporary in nature and will not result in significant adverse noise impacts.

6. Implementation of the measures contained in the Conditions of Certification below will assure that the Sunrise Cogeneration and Power Project will comply with the applicable laws, ordinances, regulations, and standards specified in the pertinent portion of Appendix A of this Decision, and that no further noise mitigation will be required.

We therefore conclude that the Sunrise Cogeneration and Power Project will not create any significant direct, indirect, or cumulative adverse noise impacts.

CONDITIONS OF CERTIFICATION

NOISE-1 At least 15 days prior to the start of rough grading, the project owner shall notify all residents within Derby Acres, by mail or other effective means, of the commencement of the Sunrise project construction. 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 Sunrise project. 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 also be posted at the Sunrise project site during construction in a manner visible to passersby. This telephone number shall be maintained until the Sunrise project has been operational for at least one year.

Verification: The project owner shall transmit to the Compliance Project Manager (CPM) in the first monthly construction report following the start of rough grading, a statement signed by the project manager attesting that the above notification has been performed, describing the method of that notification, and including a sample letter, poster or other notice, as appropriate. This statement shall also attest that the telephone number has been established and posted at the site, and also provide the telephone number.

NOISE-2 Throughout the construction and operation of the Sunrise project, the project owner shall document, investigate, evaluate, and attempt to resolve all project related noise complaints.

Protocol: The project owner shall:

1. Use the Noise Complaint Resolution Form (see below for an example), or functionally equivalent procedure acceptable to the CPM, to document and respond to each noise complaint;

2. Attempt to contact the person(s) making the noise complaint within 24 hours;

3. Conduct an investigation to determine the source of noise related to the complaint;

4. If the noise is project related, take all feasible measures to reduce the noise at its source; and

5. Submit a report documenting the complaint and the actions taken. The report shall include: a complaint summary, including results of noise reduction efforts; and if obtainable, a signed statement by the

complainant, stating that the noise problem is resolved to complainant's satisfaction.

Verification: Within 30 days of receiving a noise complaint, the project owner shall file a copy of the Noise Complaint Resolution Form, or similar instrument approved by the CPM, with Kern County and with the CPM documenting the resolution of the complaint. If mitigation is required to resolve a complaint, and the complaint is not resolved within a 30-day period, the project owner shall submit an updated Noise Complaint Resolution Form when the mitigation is finally implemented.

NOISE-3 Prior to the start of the Sunrise project construction, the project owner shall submit to the CPM for review a noise control program. The noise control program shall be used to reduce employee exposure to high noise levels during construction and also to comply with applicable OSHA standards.

Verification: At least 30 days prior to the start of rough grading, the project owner shall submit to the CPM the above referenced program. The project owner shall make the program available to OSHA upon request.

NOISE-4 Upon the Sunrise project first achieving an output of 80 percent or greater of rated capacity, the project owner shall conduct a 25-hour community noise survey, utilizing the same monitoring sites employed in the pre-project ambient noise survey as a minimum. The survey shall also include the octave band pressure levels to ensure that no new pure-tone noise components have been introduced. No single piece of equipment shall be allowed to stand out as a dominant source of noise that draws complaints. Steam relief valves shall be adequately muffled to preclude noise that draws complaints. The noise contributed by the Sunrise project operation at the nearest residence in Derby Acres shall not exceed 40 dBA L_{50} under normal operating conditions. If the results from the survey indicate that power plant noise levels are in excess of 40 dBA L_{50} at the nearest residence, additional mitigation measures shall be implemented to reduce noise to a level of compliance with this limit. The mitigation measures (to be employed as required) may include:

1. Provide standard outdoor/weather enclosures for the combustion turbine generator packages;

2. Provide air inlet silencers for the combustion turbines;

Protocol: The measurement of power plant noise for purposes of demonstrating compliance with this Condition may alternatively be made at an acceptable location closer to the plant (e.g., 400 to 1,000 feet from the plant boundary) and this measured level then mathematically extrapolated to determine the plant noise contribution at the nearest

sensitive receptor in Derby Acres. However, notwithstanding the use of this alternative method for determining the noise level, the character of plant noise shall be evaluated at the nearest sensitive receptor to determine the presence of pure tones or other dominant sources of plant noise.

Verification: Within 30 days after first achieving an output of 80 percent or greater of rated output, the project owner shall conduct the above described noise survey. Within 30 days after completing the survey, the project owner shall submit a summary report of the survey to Kern County and the CPM. Included in the report will be a description of any additional mitigation measures necessary to achieve compliance with the above listed noise limits, and a schedule, subject to CPM approval, for implementing these measures. Within 30 days of completion of installation of these measures, the project owner shall submit to the CPM a summary report of a new noise survey, performed as described above and showing compliance with this condition.

NOISE-5 The project owner shall conduct an occupational noise survey to identify the noise hazardous areas in the facility. The survey shall be conducted within thirty (30) days after the facility is operating at an output of 80% of rated capacity or greater, and shall be conducted by a qualified person in accordance with the provisions of Title 8, California Code of Regulations sections 5095-5100 (Article 105) and Title 29, Code of Federal Regulations, Part 1910. 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 state 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 upon request.

NOISE-6 In order to avoid adverse noise effects, any construction activity likely to cause noise complaints such as pile driving, excavation and grading (earth movement), concrete pouring and steel erection shall be restricted to the hours of: 7:00 a.m. to 7:00 p.m. on weekdays and from 8:00 a.m. to 6:00 p.m. on weekends and holidays.

Verification: The project owner shall transmit to the CPM in the first Monthly Construction Report a statement certifying that the above restrictions will be observed throughout the construction of the project.

NOISE COMPLAINT RESOLUTION FORM

Sunrise Cogeneration and Power Project
(98-AFC-4)

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).

C. SOCIOECONOMICS

The socioeconomic analysis evaluates the effects of project-related population changes on local schools, medical and protection services, public utilities, and other public resources, as well as the fiscal and physical capacities of local government to meet these needs. The construction phase of project development is typically the focus of the analysis because of the potential influx of workers into the area. Socioeconomic impacts are considered significant if a large influx of non-resident workers and dependents move to the project area, increasing demand for community resources that are not readily available.

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Setting

The Sunrise Cogeneration and Power project is proposed for the rural oil fields of western Kern County. The socioeconomic study area examined by the parties in the case includes: western Kern County, Arvin, Bakersfield, Buttonwillow, Maricopa, McFarland, McKittrick, Taft, Shafter, Wasco, and the unincorporated areas of Fellows, Ford City, and Derby Acres. These communities are all within commuting distances from the power plant and thus construction and operation workers are assumed to reside in the communities. (Ex. 32, p. 44.)

2. Employment

Project construction is planned to occur over a 15-month period, with peak workforce levels occurring between the seventh and eleventh months. The highest count of construction workers is estimated at 255 workers in the ninth month of construction. Approximately 225 of these workers are expected to come from communities within the study area. The average construction work force will be 160 employees with approximately 23 of those commuting from outside of the study area. Staff estimates using the Impact Analysis for Planning (IMPLAN) model calculate that total employment during construction will include

the equivalent of an additional 357 secondary jobs. Once completed, the project will require approximately 24 workers to maintain and operate it. Applicant estimated that up to 12 of these workers could be from out of the area. (Ex. 22, p. 45.)

3. Potential Impacts

a. Housing and Schools

Staff experts determined that there are approximately 94,346 total housing units within a two-hour commute of the project. In addition, as of May 1998, there are approximately 5,469 total motel/hotel rooms in the area. The combination of housing and motel/hotel rooms available to non-local construction and operations workers for the project is more than sufficient for worker needs. (Ex. 32, p. 47.)

Commission staff estimates that the work force needed to construct the project could contribute 23 school-aged children and the operation work force contribute an estimated 12 children to local schools. Schools in western Kern appear to be below capacity in most cases. Staff estimates indicate that any impacts to local schools from families involved in plant construction and operation will be small. (*Id*.) However, Staff identified the fact that the project will contribute to a cumulative, non-environmental impact upon local schools when the construction schedules for the numerous proposed power plant projects overlap.[94] (Ex. 32, p. 50.) Applicant disputed this, claiming no impact.

While Staff identified the cumulative impact on western Kern County schools as significant, Staff acknowledged that mitigation for the impact is not possible under state law school funding provisions. (11/5/99 RT 24, 35.) Government Code section 65995, signed by Governor Wilson on August 27, 1998, modifies school funding provisions found in section 17620 of the Education Code. School

[94] These projects include La Paloma, Sunrise, Elk Hills, Midway Sunset, and Pastoria power plants.

funding is now restricted to property taxes and statutory facility fees collected at the time the building permit is acquired. Public agencies may not impose fees, charges or other financial requirements to offset the cost for school facilities. [95] 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. (Ex. 32, p. 47.)

b. Public Services

The evidence of record is uncontroverted that during construction or operation the project is not expected to place significant demands on the Kern County Fire Department, on the Kern County Sheriff Department, or on the Westside District Hospital. (Ex. 32, p. 48.)

c. Local Economy

The project s construction payroll is expected to range between $18 million and $23 million. The first year of property taxes is expected to generate between $1.75 million and $1.95 million in revenue to Kern County with approximately $1.8 million allocated to education. Sales taxes resulting from the local purchase of supplies and materials will likely generate between $72,500 and $87,000 per year. (11/5/99 RT 16-17.)

4. Cumulative Impacts

Cumulative effects can occur when the construction schedule of one project overlaps that of another. As discussed above, a series of power plant projects is anticipated for construction in Kern County including La Paloma, Sunrise, Elk Hills, Midway Sunset, and Pastoria. With the addition of each subsequent project, the ability of the local labor force to meet construction needs decreases

[95] School facilities are defined in the act as any school-related consideration relating to a school district s ability to accommodate enrollment.

and the demand for new laborers may result in families moving into the area. This is likely to lead to increased enrollment in local schools.

While the existing fire protection services are sufficient to deal with the anticipated power plant projects, the evidence shows that Kern County Fire Department (KCFD) anticipates an increase in the number of emergency responses that typically occur at industrial facilities such as power plants. The KCFD has identified the need for one new ladder truck and new personnel to maintain its current level of service and respond to anticipated needs. (Ex. 32, p. 51.) KCFD estimates the cost of the truck and additional staff will be $750,000. Although the proposed power plants in the area will pay property taxes to the county s fire fund, the tax payments for each project will not begin until approximately 18 months after start of construction. Therefore, the fire department will require each of the projects to make up-front payments to cover the costs for the required new equipment and staff. (Ex. 32, p. 52.) This agreement is reflected in Condition of Certification **SOCIO-2**.

The evidence indicates that any impacts from closure of the facility would not likely be significant, and can adequately be addressed through the provisions contained in the Compliance Plan portion of this Decision. (Ex. 32, p. 53.)

Commission Discussion

The Commission agrees with Staff that the Sunrise project, in conjunction with other power plant projects in the area, is likely to contribute to a non-environmental cumulative impact on schools in the greater Bakersfield area. We acknowledge that the Sunrise project is anticipated to generate approximately $1.75 to $1.95 million in revenue to Kern County in its first year of paying taxes. $1.18 million of this amount is likely to be allocated to local schools. (11/5/99 RT 17.) Under state law, Applicant may not be charged additional fees to address the identified cumulative impact. (Gov t. Code,／65995.)

Nevertheless, to assist the local school districts in dealing with the identified cumulative impact, the Commission has added a Condition of Certification which requires Applicant to inform each local district whenever new workers moving into the area will have school children attending schools in that district. A copy of any report to schools will be sent to the CPM as well. In addition, we recommend that in light of the several power plants planned for construction in the area, the Commission more fully analyze the cumulative impacts of the projects on local schools.

FINDINGS AND CONCLUSIONS

1. The Sunrise Cogeneration and Power Project will draw primarily upon the local labor force for construction and operation workers.

2. The Sunrise Cogeneration and Power Project will not directly cause an influx of a significant number of construction or operation workers into the project area.

3. The Sunrise Cogeneration and Power Project will contribute to a significant cumulative impact on local schools which, under state law, cannot be mitigated.

4. Construction and operation of the Sunrise Cogeneration and Power Project will result in substantially increased revenue from property and sales taxes, employment, and sales of services, manufactured goods, and equipment.

5. Four other power plant projects are currently anticipated to be built in western Kern County.

6. The projected construction schedules of these four power plants, and that of the Sunrise Cogeneration and Power Project, will likely result in overlapping construction periods.

7. Construction and operation of these projects, including the Sunrise Cogeneration and Power Project, will result in increased enrollment in schools in the Bakersfield area and in the immediate vicinities of the projects.

8. Many schools in the Bakersfield area are at or near enrollment capacity; schools in the western Kern County area are typically below capacity.

9. State law restricts school funding to property tax revenues and statutory facility fees collected at the time the building permit is issued; public agencies may not impose additional fees, charges, or other financial requirements to offset the cost of school facilities.

10. The present net value of the estimated property taxes which will be imposed upon the Sunrise Cogeneration and Power Project and earmarked for education is approximately $1.18 million in the first year of operation or approximately $23.6 million over an estimated 20-year project life.

11. Future power plant projects in the general area will also be assessed property taxes.

12. Sufficient housing is available in the area to accommodate workers for the construction and operation of the Sunrise project.

13. Existing local medical, police, and fire fighting services are adequate to meet the needs of the Sunrise Cogeneration and Power Project, whether considered alone or in conjunction with other potential power plants.

14. The Kern County Fire Department possesses sufficient equipment and personnel to provide adequate emergency response capabilities for the Sunrise Cogeneration and Power Project.

15. The Kern County Fire Department requires additional equipment and personnel to provide adequate emergency services for incidences that occur at facilities such as the five proposed power plants identified for construction in western Kern County.

16. Each of the power plants proposed for the western Kern County area will benefit from the emergency services provided by the Kern County Fire Department.

17. Applicant and the Kern County Fire Department have entered into an agreement to assure that all of the identified power plant projects contribute to obtaining additional fire department equipment and personnel.

18. Socioeconomic impacts resulting from construction and operation activities of the Sunrise Cogeneration and Power Project, when considered alone or in combination with similar activities from other identified power plants in the area, will be mitigated to the extent feasible.

19. The Condition of Certification below assure that the Sunrise Cogeneration and Power Project will comply with the laws, ordinances, regulations, and standards contained in the pertinent portion of Appendix A of this Decision.

We therefore conclude that the Sunrise Cogeneration and Power Project will not result in any significant direct, indirect, or cumulative adverse socioeconomic impacts.

CONDITIONS OF CERTIFICATION

SOCIO-1 The project owner shall pay the statutory school impact development fee as required at the time of filing for the in-lieu building permit with the Kern County Department of Engineering and Survey Services and Building Inspection.

Verification: The project owner shall provide proof of payment of the statutory development fee in the next Monthly Compliance Report following the payment.

SOCIO-2 Not later than 30 days after certification, the project owner shall reach agreement with the KCFD and La Paloma on SCPC s portion of the total funding to be shared by the other power plant projects discussed in the testimony that are certified for the following:

a. Purchase of a new 105-foot Pierce Quint Aerial ladder truck equipped for high angle and confined space rescues;

b. First year funding for nine new positions for personnel to cover three shifts for the new truck; and

c. First year funding for a replacement ladder truck.

Verification: Not later than 45 days after certification, the project owner shall provide the CPM with a copy of an agreement with the KCFD and other power plant projects discussed in the testimony for funding of items a) through c) above.

SOCIO-3 The project owner shall inform the affected school districts within the greater Bakersfield area of project construction and operation workers new to the area who plan to enroll children in local schools. The report to the school

district shall include the children s age, grade, and the name of the school the child plans to attend.

Verification: The project owner shall inform the appropriate school district within 30 days of the time an employee or contractor employee begins construction or operation work on the project, if: 1) the employee is new to the area and 2) plans to enroll children in local schools. A copy of the report to the school districts shall be included in the next periodic report to the CPM.

D. TRAFFIC AND TRANSPORTATION

In this section, we examine the extent to which the Sunrise Cogeneration and Power Project will affect the regional and local transportation systems. In some cases large numbers of construction workers can, over the course of the construction period, increase roadway congestion and affect traffic flow. Various activities associated with building the project s linear facilities may also prove disruptive, as can the transportation of large pieces of equipment on local roadways.

Therefore, during these licensing proceedings, we identified the roads and routings which will be used; potential traffic problems associated with those routings, the anticipated number of deliveries of oversized/overweight equipment; anticipated encroachments upon public rights-of-way; the frequency of and routes associated with, delivery of hazardous materials; and the availability of alternative transportation methods.

SUMMARY AND DISCUSSION OF THE EVIDENCE

The construction and operation of Sunrise Cogeneration and Power Project will increase traffic flows on the local road network. Major roadways which will potentially be affected by construction and operation of the project are highways 33, 43, 58, 99, 119, 166, and Interstate 5. (Ex. 32, p. 24-25.) The plant site is reached off Highway 33, west on Midway Road to Modal Road and north on Shale Road to the project. Applicant will construct an asphalt-paved access road from Shale Road to the project. All of these roads operate at a level of service (LOS) which is at LOS D or above, and is therefore deemed acceptable by Kern County.[96] (*Id*.)

[96] LOS thresholds range from A to F. LOS A refers to little or no congestion while F signifies heavy congestion. LOS A, B, and C are considered satisfactory to most motorists. Both Caltrans and Kern County consider LOS D and above to be acceptable for planning purposes. Roads at levels E or F are considered unacceptable and must be mitigated to an acceptable level.

All county roads near the project are currently operating at LOS A or better. Traffic in the vicinity of the project site is characterized by a large ratio of trucks to cars associated with the area s proximity to the Midway Sunset oil fields. (Written testimony of Ray Weiss, introduced on 12/2/99 RT 15.)

1. Traffic Congestion

a. Construction

Project construction will most effect local roads providing access from the state routes as construction workers commute to the site. During peak times traffic is estimated to increase between 26 percent and 102 percent with Shale Road receiving the greatest impact; an increase of up to 408 trips per day. Average construction-related traffic generated by the workforce will result in an additional 180 to 256 vehicles per day on local roads. The increases are expected to occur between 6:00 a.m. and 7:00 a.m. in the morning and 4:00 p.m. and 5:00 p.m. in the evening.

Applicant s analysis of traffic impacts during project construction showed a short-term impact at the intersection of State Route 119 and Midway Road, especially in the east-bound left-turn lane from Midway Road onto State Route 119. The impact would peak in the afternoon during peak and average construction phases of the project. Applicant s witness clarified that the impact will be mitigated through Condition of Certification **TRANS-7** and that Applicant would employ a flagman to control the intersection. (12/2/99 RT 16-17.)

Construction impacts to regional State Routes are not expected to be significant because of the current high capacity of these routes and their minimal average daily traffic. Construction of the electric transmission line is not expected to create significant impacts to local transportation due to the relatively small number of truck deliveries and their distribution along the extent of the

transmission route. Because the Sunrise project generates steam to support crude oil production, there may be incremental increases in traffic associated with construction and operation of oil field equipment. These impacts cannot now be specifically evaluated but are expected to be minimal. (Written testimony of Ray Weiss, introduced on 12/2/99 RT 15.)

Construction of the generating plant will require the use and installation of heavy equipment such as trenchers and earthmoving equipment. In addition to deliveries of heavy equipment, construction materials such as concrete, wire, pipe, cables, fuels, and steel will be delivered to the site by trucks. An estimated 3,014 truck deliveries will be made to the plant site over the course of the 15 month construction periods, averaging approximately 40 truck trips per day. (Ex. 32, pp. 27-28.)

Cumulative effects of plant construction are not expected to be significant since other proposed generation plants in the area are likely to be on different construction schedules and more importantly, traffic for the La Paloma, Elk Hills and Midway Sunset projects will not use the same access roads as those used by the Sunrise project. (Ex. 32, p. 36.)

b. Operation

Operation of the generating plant will require a labor force of approximately 24 full-time employees who will generate an estimated 48 vehicle trips per day. It is assumed that most employees will reside in Bakersfield and commute to the generation plan along State Route 119 to Midway Road, then west to State Route 33 to the project site. This operations-related traffic is not expected to be significant, generating less that 1 percent of the existing daily traffic on the State Route 119 and 33 and an estimated 6 percent along Midway Road. Truck deliveries of hazardous materials are addressed below.

Operation of the project is not expected to contribute significantly to cumulative impacts because the number of permanent full-time employees needed to operate the various proposed and licensed generation plants is approximately 24 employees per plant. This small number of total employees will not burden local traffic. (Ex. 32, p. 36.)

c. Closure

Unexpected temporary closure of the Sunrise facility would likely result in impacts to traffic and transportation which are similar to those for normal operation of the plant. In the event of permanent closure, traffic and transportation impacts would be similar to those associated with project construction. Permanent closure will involve a peak work period of increased commute traffic. As with construction impacts, the local roadway system within the vicinity of the project should be able to handle such traffic without a significant impact to the current LOS of the area roads. (Ex. 32, p. 38.)

2. Hazardous Materials Deliveries

The only matters in contention concerning traffic and transportation involved the delivery of anhydrous ammonia to the project. Anhydrous ammonia is proposed as a material for controlling the emission of oxides of nitrogen (NO_x) from the combustion of natural gas at the facility. Concerns arise because the accidental release of anhydrous ammonia can result in hazardous down-wind concentrations of ammonia gas. While Applicant and Staff agreed that truck transportation of anhydrous ammonia from regional distributors to the Sunrise project would pose no significant risk, CURE argued that a significant risk is presented and must therefore be mitigated.

To defend its position, Applicant conducted a probability analysis to quantify the risk of a release of anhydrous ammonia during transport to the Sunrise project.

(Ex. 22, pp. 8-9; Ex. 40, pp. 1-6; 12/2/99 RT 19-20.) Sunrise witness David Einolf testified that a probability of 8.5 in one million was calculated using EPA Guidelines for a worse case scenario in which the entire contents (7500 gallons) of an ammonia tanker was released in a ten minute period. (12/2/99 RT 20.) He explained that the analysis was extremely conservative because: 1) it is highly unlikely that a tanker would arrive at the Sunrise project with a full 7500 gallon load since that exceeds the amount of storage at the plant site; 2) a total release of a full ammonia tanker has not occurred in the years since the inception of the reporting system; 3) in the period from 1993 to 1998 there have been only four transportation incidents in California involving anhydrous ammonia. These resulted in a total release from all four incidents of less than half a gallon of ammonia; and 4) the risk probability was calculated using generalized nationwide data for vehicle failure rates that are higher than those for California, because this state s weather is less severe than the national average. (12/2/99 RT 20-22.)

Applicant s witness noted his agreement with the Conditions of Certification proposed by Staff in the FSA and stated his opinion that the project will comply with all applicable laws, ordinances, regulations, and standards concerning the transportation of hazardous materials. He also voiced his opposition to the various mitigation measures proposed by CURE. (12/2/99 RT 22-26.) Mr. Einholf opined that the risk of an ammonia transportation accident is linked to the number of miles of transport. (12/2/99 RT 36.) Since CURE s proposal to substitute aqueous for anhydrous ammonia would increase truck deliveries five-fold, the risk of an accident would increase by the same factor. (12/2/99 RT 22.) In addition, because aqueous ammonia deliveries to the project would occur approximately five times more frequently than for anhydrous ammonia, there would be an increased risk to plant workers during the deliveries. (10/14/99 RT 65.)

Mr. Einholf also took issue with several of the other mitigation measures recommended by CURE. He noted that contrary to CURE s recommendation to

maximize the use of rural roads for ammonia deliveries, the Kern County General Plan circulation element provides a policy directing the shipment of hazardous materials away from rural roadways and towards highways and freeways. (12/2/99 RT 23.) He also disagreed with the recommendation of Dr. Phyllis Fox from CURE, who asked that deliveries be limited to nighttime hours. According to Mr. Einholf, this could actually increase the risk to the public. (12/2/99 RT 23.)

He disagreed with other restrictions on ammonia delivery recommended by Dr. Fox, citing the fact that the major transporters of industrial ammonia in California have not suffered a transportation release in the last 22 years.[97] (12/2/99/ RT 24.) Furthermore, since both the Applicant and Staff analysis had revealed no significant project-related impacts from the transport of ammonia, he feels no further mitigation measures are called for. He believes CURE s recommendations would increase, rather than decrease any risks. (12/2/99 RT 26.)

Staff also examined the risks and potential impacts of transporting anhydrous ammonia to the project site. Staff determined that any potential impacts would be limited to a level of insignificance by Applicant s compliance with federal and state standards established to regulate the transportation of hazardous substances. Staff also noted the low level of truck traffic in the area and the Conditions of Certification as additional factors, which mitigate to a level of insignificance any risk from ammonia deliveries. (Ex. 32, pp. 32, 58.)

In response to concerns raised in CURE s comments on the Preliminary Staff Assessment (PSA), Staff members conducted visual observation of designated truck routes between the project site and the interstate highways. Staff experts found no unusual hazards, stating that the roadway system can sufficiently and safely handle the delivery of anhydrous ammonia by approximately 3 trucks per month without incident. (Ex. 32, p. 31, 12/2/99 RT 53.) Staff therefore believes

[97] Mr. Einholf referred to Button Transportation Company and Bulk Transportation Company.

CURE s recommendation of using primarily rural roads rather than highways would actually increase risks. (12/2/99 RT 52-53.) Like the Applicant, Staff opposes CURE s suggestion of night deliveries as being unnecessary and possibly adding risks. Staff also opposes CURE s recommendation that Applicant be required to purchase ammonia from dealers within 50 miles of the project. Staff considers it an artificial distinction based upon the location of the ammonia dealer rather than on actual risks of transporting ammonia associated with the project. (Staff Opening Brief, 1/24/00 p. 9.)

As noted above, CURE takes the position that the regular delivery of anhydrous ammonia during project operation will cause significant impacts and will fail to assure public health and safety. CURE s witness, Dr. Phyllis Fox, carried out her own ammonia transportation risk analysis and argued the inadequacies of those done by Applicant and Staff. (12/2/99 RT 62.) While her analysis assumed a smaller spill of ammonia than Applicant s study (1,000 versus 7,500 gallons) it nevertheless showed that even smaller amounts could expose people within 2 miles of an ammonia tanker accident to concentrations in excess of 75 PPM. (Ex. 43, p. 8.) As a result of this risk, CURE argues that the Commission should require the Applicant to use dilute aqueous ammonia instead of the more concentrated anhydrous form. This way, in the event of a major spill, the aqueous would disperse a smaller plume of hazardous gas and thus pose less risk to plant workers and the public.

In the alternative, CURE urges the Commission to impose Conditions of Certification upon Applicant s use of anhydrous ammonia, which include the following:

- Use only California Fertilizer Association certified carriers to haul ammonia to the project.
- In order to shorten hauling distances, obtain anhydrous ammonia only from distributors located within 50 miles of the project.

- Use rural delivery routes to the maximum extent feasible.
- Restrict ammonia deliveries to fair weather conditions and off-peak or nighttime hours along highly populated portions of the delivery route.

COMMISSION DISCUSSION

The evidence of record is undisputed that with the Conditions of Certification proposed by Staff, the project can comply with applicable laws, ordinances, regulations, and standards which apply to transportation-related aspects of the project. Local roads are adequate to accommodate the peak transportation loads during construction and will not be significantly impacted by the modest traffic related to operation of the project. Furthermore, the project as mitigated, will not cause any significant direct, indirect or cumulative impacts to the existing transportation system in Kern County. (12/2/99 RT 15, 53-54; Ex. 32, pp. 35-36.)

The major issue in contention concerning traffic and transportation impacts is regarding the form of ammonia to be used and what, if any, additional conditions to place on that use. Ammonia in either the aqueous or the anhydrous form is a hazardous material, and the Commission must concern itself with its handling and transportation. A large accidental release can certainly be harmful and even fatal in higher concentrations. Nevertheless, virtually all modern thermal power plants fired by natural gas must use ammonia as part of its selective catalytic reduction system to control emissions of nitrogen oxide (NO_x). The Commission has licensed many plants which use either anhydrous or aqueous ammonia. These plants receive regular ammonia deliveries subject to a substantial body of regulation and control. (Ex. 32, pp. 19-21.) In fact, CURE s witness Dr. Fox acknowledged that she was not surprised by Applicant s statement that as many as 58 power plants in California currently use anhydrous ammonia. (12/2/99 RT 108.)

In addition, many more California industries, including agriculture, make extensive use of anhydrous ammonia. Yet for all the anhydrous ammonia being

transported in California, the record shows that since 1993, there have been only four transportation incidents, which resulted in a total ammonia release from all four of less than half a gallon. (12/2/99 RT 21.) No party provided any evidence of injury related to an anhydrous ammonia release connected to transportation in California. Thus, it is reasonable for the Commission to conclude that adherence to modern laws, ordinances, regulations, and standards concerning the transportation of anhydrous ammonia has prevented significant harm to the public. The record is undisputed that Applicant can and will abide by current requirements. We therefore find that the project complies with LORS. Furthermore, based on the record before us, such compliance and the implementation of the Conditions of Certification which follow make it likely that the transportation of anhydrous ammonia to the project will pose no significant threat to the health and safety of the public. Thus, Applicant has met its burden of proof in this area.

While it is undisputed that the use of aqueous ammonia, as recommended by CURE, has a smaller lethal range than anhydrous ammonia due to its dilute concentration and lower pressure, five times the deliveries would be required to match an equivalent volume of anhydrous ammonia. That equates with five times the travel miles and five times the transfer pumping and handling at distributor centers and at the power plant. These added deliveries present risks which, according to the record, are not outweighed by the reduced risk of using aqueous ammonia. While CURE focuses its arguments on the risks associated with the larger gaseous ammonia plume from an release of anhydrous ammonia, Applicant and Staff demonstrated that other aspects of shifting to aqueous ammonia would not significantly reduce the risks in this case. Furthermore, none of the accidental ammonia releases cited by CURE occurred in California. (12/2/99 RT 91.) CURE has not convinced us that Applicant s proposal will a pose significant risk of impact.

Many of CURE s mitigation proposals, offered as alternatives if anhydrous is to be used, are also problematic. Restricting deliveries from ammonia distributors located within 50 miles of the project does not, in our view, reduce risks to the public. Anhydrous ammonia must be delivered to local distributors just as to more remote dealers. Presumably, such deliveries will use public thoroughfares and thereby present certain risks. However, these risks are addressed by LORS currently in place, which control the transportation of anhydrous ammonia anywhere in California. We are not convinced that CURE s proposal to geographically restrict anhydrous ammonia purchases to within 50 miles of the project would reduce any risks to the public.

Similarly, we are not persuaded by CURE s recommendations that project deliveries of anhydrous ammonia be limited to nighttime hours and maximize the use of rural roads. CURE presented no evidence on whether more stable meteorological conditions, resulting in less plume dispersion, were more or less frequent at night.[98] Thus, night time delivery requirements could actually increase risks. County transportation requirements and the weight of evidence argue against a preference for deliveries on rural roads over highways.

However, we are persuaded by CURE s argument that Applicant should be required to use only ammonia providers who participate in the California Fertilizer Association s (CFA) transportation program. Applicant indicated that it intends to use certified providers. (Ex. 40, pp. 3-4; 12/2/99 RT 26.) We believe it is prudent to require them to do so.

[98] Dr. Fox acknowledged on cross examination that meteorological conditions are generally more stable at night and that, all other things being equal, a night time ammonia release could have greater consequences than one during the day. (12/2/99 RT 103.)

FINDINGS AND CONCLUSIONS

Based upon the evidence of record, we find and conclude as follows:

1. Construction and operation of the Sunrise Cogeneration and Power Project will cause increased traffic on the local area s road network.

2. The capacities of the roads in the local area are sufficient to satisfactorily absorb the increased traffic occasioned by construction and operation of the Sunrise Cogeneration and Power Project.

3. All potential adverse impacts from the transportation and handling of hazardous substances associated with construction and operation phases can be mitigated to a level of insignificance by complying with applicable law and the Conditions of Certification which follow.

4. Deliveries of anhydrous ammonia to the Sunrise Cogeneration and Power Project shall only be carried out by carriers certified by the California Fertilizer Association.

5. Construction activities will encroach upon public rights-of-way, and create adverse impacts upon roadway function and level of service.

6. Impacts upon roadways due to construction activities are temporary and, as mitigated by the Conditions of Certification, are not significant.

7. Construction and operation of the Sunrise Cogeneration and Power Project will not contribute to cumulatively significant adverse traffic impacts.

8. The Conditions of Certification below ensure that construction and operation of the Sunrise Cogeneration and Power Project will comply with applicable laws, ordinances, regulations, and standards.

We therefore conclude that construction and operation of the project will not result in significant direct, indirect, or cumulative adverse impacts to the area s transportation network.

CONDITIONS OF CERTIFICATION

TRANS-1 The project owner shall comply with Caltrans and Kern County limitation on vehicle sizes and weights for vehicles owned by the project owner. In addition, the project owner or its contractor shall obtain necessary transportation permits from Caltrans and all relevant jurisdictions for roadway use.

Verification: In the Monthly Compliance Reports, the project owner shall submit copies of any oversize and overweight transportation permits received during that reporting period. 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 or its contractor shall comply with Caltrans and Kern County limitations for encroachment into public rights-of-way and shall obtain necessary encroachment permits from Caltrans and all relevant jurisdictions.

Verification: In Monthly Compliance Reports, the project owner shall submit copies of any encroachment permits received during the reporting period. 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-3 The project owner shall require as a condition of its contract with independent truckers that permits and/or licenses be obtained from the California Highway Patrol and/or Caltrans for the transport of hazardous materials.

Verification: The project owner shall include in its Monthly Compliance Reports, copies of all permits/licenses acquired by the project owner and/or subcontractors concerning the transport of hazardous substances.

TRANS-4 Prior to the start of construction, the project owner shall consult with Kern County, and prepare and submit to the Compliance Project Manager (CPM) a construction traffic control plan and implementation program which addresses the following issues:

- Timing of heavy equipment and building materials deliveries;
- Signing, lighting, and traffic control device placement;
- Establishing construction work hours outside of peak traffic periods;
- Emergency access;
- Temporary travel lane closures;

- Maintaining access to adjacent residential and commercial property; and
- Off-street employee parking in construction areas during peak construction.

Verification: Thirty (30) days prior to start of construction, or a lesser period of time as mutually agreed to by the project owner and the CPM, the project owner shall provide to the CPM for review and approval, a copy of its construction traffic control plan and implementation program.

TRANS-5 The project owner or its contractor shall install crossing structures and netting, if required by Caltrans across major thoroughfares as a safety precaution and to reduce the potential for damage from falling construction materials or equipment during cable-stringing activities. Thirty days prior to cable stringing, the project owner shall consult with Caltrans, and prepare and submit to the CPM a safety plan and implementation program.

Verification: Thirty (30) days prior to wire stringing, or a lesser period of time as mutually agreed to by the project owner and the CPM, the project owner shall provide to the CPM for review and approval, a copy of its safety plan and implementation program.

TRANS-6 Following construction of the power plant and all related facilities, the project owner shall meet with the CPM and Kern County to determine if any actions are necessary and develop a schedule to complete the repair of any roadways damaged due to project construction.

Protocol: Thirty days prior to start of construction or a lesser period of time as mutually agreed by the project owner and the CPM, the project owner shall photograph the primary routes to be used by construction traffic (from the junction of Hwy. 33 westerly along Midway Road to Mocal Road, north along Shale Road to the project site). The project owner shall provide the CPM and Kern County with a copy of these photographs. Following project construction, the project owner will meet with the CPM and Kern County to determine the project related road damage, if any.

Verification: Within 30 days of the completion of project construction, the project owner shall meet with the CPM and Kern County and determine if any roadway repairs are necessary. The project owner shall provide a copy of a letter from Kern County acknowledging satisfactory completion of the roadway repairs, if necessary in the first Annual Compliance Report following start of operation of the Sunrise project.

TRANS-7 The project owner shall provide a Traffic Control Plan to Caltrans for review prior to their issuance of a encroachment permit.

Protocol: The Traffic Control Plan shall include the following element:

- Provide timeframes for flagman and/or sheriff assignments during the six-months of peak construction period at the intersection of State Route 119 and Midway Road.

Verification: The Traffic Control Plan shall be submitted to Caltrans for review at least 30 days prior to start of project construction. The project owner shall provide a copy of a letter from Caltrans acknowledging acceptance of the Traffic Control Plan in a Monthly Compliance Report within 30 days of receipt of the letter.

TRANS-8 Prior to start of commercial operation, the project owner shall negotiate an agreement with Caltrans for the payment of a fair share amount for future signalization at the intersection at State Route 119 and Midway Road.

Verification: The fair share amount shall be paid to Caltrans at least 30 days prior to start of commercial operation. The project owner shall provide a copy of a letter from Caltrans acknowledging receipt of the fair share amount in a Monthly Compliance Report within 30 days of receipt of the letter.

TRANS-9 The project owner shall require as a condition of its contract with carriers for the transport of anhydrous ammonia, that all such carriers are certified by the California Fertilizer Association.

Verification: The project owner shall include in its Monthly Compliance Reports under Condition of Certification **TRANS-3** concerning the transport of hazardous substances, evidence that any transporter of anhydrous ammonia to the project is certified by the California Fertilizer Association.

E. VISUAL RESOURCES

Visual resources are the natural and the cultural features of the environment that one sees. Visual quality is considered to be the value of these visual resources. Scenic resources are those visual resources that contribute positively to visual quality. Under this topic, it is thus relevant to assess whether the project will create a substantial intrusion upon the viewshed.[99] The California Environmental Quality Act (CEQA) requires an examination of a project s visual impacts on the environment which have the potential to cause substantial degradation to the existing visual character of the site and its surroundings. (Cal. Code of Regs., tit. 14, Appendices G and I.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Visual Setting

The general area in which the Sunrise Cogeneration and Power Project will be located is within the Midway Sunset Oil Field in western Kern County. The site is on the western side of Midway Valley at the foot of the Temblor Range, with Elk Hills to the northeast. It is a rural area containing intensive oil field facilities including pumps, tanks derricks, pipelines, and roadways, as well as electrical and petroleum transmission lines. Vegetation includes low-growing and sparse grasslands, saltbush scrub, and alkali sink scrub. Population density in the area is low. (Ex. 23, pp. 104-105.)

There are no designated scenic highways, roads or corridors in the vicinity.

[99] This assessment can also include an evaluation of whether a proposed project complies with applicable laws, ordinances, regulations, and standards. In the present instance, however, there are no specific pertinent federal, state, or local enactments. Visual or aesthetic resources are addressed in the Kern County General Plan, Open Space Element, and are implemented by the Kern County Planning and Development Services Department. Since the Sunrise project is consistent with the land use designation for the area, it is also consistent with associated visual resource planning policies and General Plan requirements. (Ex. 23, p. 101.)

2. Potential Impacts

The power plant will be visible from up to three miles away due to the relatively flat terrain. It will be seen from SR 33 and other local roads. However, it will not be visible from the nearby communities of Fellows, Derby Acres, or McKittrick. The project s electrical transmission line will similarly be visible for up to three miles distance for much of the length of the line from the project to it interconnection at the Midway Substation. The transmission corridor route is visible from SR 33, SR 58, Buerkle Road, Mirasol Avenue, Reserve Road, and Skyline Road as well as from local farm residences. Views from these locations already include high-voltage overhead transmission lines. (*Ibid*.; Ex. 22, Testimony of Chris Elliot, p. 2.)

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VISUAL RESOURCES FIGURE 1

(FSA P.103) **-- not availabile in on line version**

Source: Ex. 23, p.103

VISUAL RESOURCES FIGURE 2

VISUAL FIG.2 (FSA P. 106.) -- not available in on line version

Source: Ex. 23, p. 106

a. Key Observation Points (KOPs)

The evidence of record contains the results of analyses performed to assess the project s visual impact. These analyses are based, in part, on viewshed evaluations from Key Observation Points (KOP). The KOPs are representative of project views, in the local area. The KOPs are described in VISUAL RESOURCES Table 1.

VISUAL RESOURCES Table 1
Key Observation Points

KOP Number	Description
1	From State Route 33 looking west toward the power plant site.
2	From State Route 33 south of McKittrick looking north toward the proposed electric transmission line route.
3	From the southern edge of McKittrick, looking south toward the proposed electric transmission line route.
4	From State Route 58 northeast of McKittrick, looking northeast toward the proposed electric transmission line.
5	From Mirasol Avenue just south of Buerkle Road, looking west toward proposed electric transmission line Route D.
6	From Buerkle Road just west of Mirasol Avenue, looking southwest toward proposed electric transmission line Route D.
7	From Buerkle Road just west of Mirasol Avenue, looking northwest toward proposed electric transmission line Route B.

Source: Ex. 23, p. 107

Visibility of the project s site is largely unobstructed from KOP 1; located at State Route 33, east of the power plant site. The view is across low-lying vegetation in the foreground with the Temblor Range in the background. It includes oil field development facilities and wood pole electric line. Viewers are likely to be travelers on local SR 33 and nearby residences. A similar view of the project is apparent from KOP 2, at State Route 33, south of the electric transmission line route. The plant will be visible from two residences at this point. Several residences will also observe the view similar to KOP 3 located at the southern end of the town of McKittrick. This point includes views of the natural vegetation but also reveals roads and electric lines.

KOP 4 examines the project site from a point northeast of McKittrick along State Route 58. The view from this point is impacted by the project s transmission line. Visual impacts of the project from KOPs 5, 6, and 7 are from electric transmission lines crossing the landscape.

After determining the appropriate Key Observation Points for the analysis, Commission staff assessed the susceptibility of viewers to the visual impacts of the project and judged the severity of the impact. The component elements of susceptibility are the existing visual quality and viewer sensitivity, visibility, and exposure. Relevant factors in assessing a potential impact s severity include contract with the existing viewshed, scale and spatial dominance, and view blockage. These are all elements of the Staff methodology for analyzing visual impacts from a project (10/14/99 RT 115; see Ex. 23, pp.173-185.)

Based upon a combination of these evaluative criteria, and the mitigation measures contained in the Conditions of Certification, the evidence shows that the project and its related facilities will result in the visual impacts shown on the Table below. (Ex. 23, p.123.)

VISUAL RESOURCES Table 4
Visual Impacts - Key Observation Points

	SUSCEPTIBILITY TO VISUAL IMPACT	SEVERITY OF VISUAL CHANGE	VISUAL IMPACT
Key Observation Point 1	Moderate	Weak	Insignificant
Key Observation Point 2	Moderate to High	Moderate	Less than Significant
Key Observation Point 3	Moderate	Moderate	Less than Significant
Key Observation Point 4	Moderate to High	Moderate	Less than Significant
Key Observation Point 5	Moderate to High	Moderate	Less than Significant
Key Observation Point 6	Moderate to High	Moderate	Less than Significant
Key Observation Point 7	Moderate to High	Moderate	Less than Significant

Source: Ex. 23, p. 123

The Conditions of Certification which follow offer a number of mitigation measures to reduce the project s visual impacts. For example, painting the facility to blend with the background and designing outdoor lighting to reduce glare, as required in the Conditions of Certification, will reduce the project s visibility.

During the evidentiary hearing of October 14, 1999, there was controversy over Staff proposed Condition of Certification **VIS-4**. That condition required Applicant to comply with landscaping requirements of the Kern County Zoning Code by submitting for approval a landscaping plan for the power plant site. (Ex. 23, p. 147.) Subsequently, Kern County Senior Planner David B. Rickels sent a letter to the Commission staff dated December 16, 1999. In the letter Mr. Rickels stated that due to the remoteness of and lack of public exposure to the plant site,

the County would not require site landscaping. As a result, Staff recommended deletion of Condition of Certification **VIS-4**, requiring landscaping. (Ex. 86.) However, as discussed in the **Land Use** section of this Decision, the Commission has required Applicant to provide off-site public lighting in the community of Derby Acres.

The evidence of record establishes that although the Sunrise Cogeneration and Power Project would add a noticeable industrial increment to the existing industrial character of the Midway Sunset oil field, it would not substantially lessen the existing visual conditions. The transmission towers for the project would also not create significant visual impacts. (10/14/99 RT 120.) Furthermore, the project would not contribute to a cumulative visual impact to sensitive receptors since no residences with views of the Sunrise Cogeneration Power Project will also have a view of other potential power plants such as the La Paloma, Elk Hills and Midway Sunset projects. (Ex. 22, Testimony of Chris Elliot; 10/14/99 RT 120.)

FINDINGS AND CONCLUSIONS

Based upon the uncontroverted evidence of record, we find and conclude as follows:

1. The Sunrise Cogeneration and Power Project will be constructed in an area of existing oilfield and industrial development.

2. Construction of the Sunrise Cogeneration and Power Project will add a noticeable, but not significant, industrial increment to the existing viewshed.

3. The Conditions of Certification below require the implementation of mitigation measures sufficient to minimize the visual intrusion of the Sunrise Cogeneration and Power Project.

4. The Sunrise Cogeneration and Power Project will not contribute to a significant adverse cumulative visual impact.

We therefore conclude that the construction and operation of the Sunrise Cogeneration and Power Project will not cause any significant direct, indirect, or cumulative adverse visual impacts.

CONDITIONS OF CERTIFICATION

VIS-1 Prior to first electricity generation, the project owner shall treat the project structures, buildings, and tanks visible to the public in non-reflective colors to blend with the natural setting.

Protocol: The project owner shall submit a color plan for the project to the California Energy Commission Compliance Project Manager (CPM) for review and approval. The color plan shall include:

- specification, including color samples and 11" x 17" color simulations, of the color(s) proposed for use on project structures, including structures colored during manufacture;
- a detailed schedule for completion of the treatment; and,
- documentation that switchyard structures shall be galvanized steel, switchyard buss shall be aluminum, and other switchyard structures shall be in shades of ANSI gray;
- documentation that transmission structures shall be galvanized steel; and,
- a procedure to ensure proper treatment maintenance for the life of the project.

If the CPM notifies the project owner that revisions of the color plan are needed before the CPM will approve the plan, the project owner shall submit to the CPM a revised plan.

After approval of the color plan by the CPM, the project owner shall implement the plan according to the schedule and shall ensure that the treatment is properly maintained for the life of the project.

For any structures that are treated during manufacture, the project owner shall not specify the treatment of such structures to the vendors until the project owner receives notification of approval of the color plan by the CPM.

The project owner shall not perform the final treatment on any structures until the project owner receives notification of approval of the color plan from the CPM.

The project owner shall notify the CPM within one week after all precolored structures have been erected and all structures to be treated in the field have been treated and the structures are ready for inspection.

Verification: Not later than 60 days prior to treating any structures that are to be color treated during manufacture, or a lesser period of time mutually agreed to by the project owner and the CPM, the project owner shall submit its proposed color plan to the CPM for review and approval.

If the CPM notifies the project owner that any revisions of the color plan are needed before the CPM will approve the plan, within 30 days of receiving that notification, the project owner shall submit to the CPM a revised plan.

Not less than thirty days prior to first electricity generation, the project owner shall notify the CPM that all structures treated during manufacture and all structures treated in the field are ready for inspection.

The project owner shall provide a status report regarding treatment maintenance in the Annual Compliance Report.

VIS-2 Any fencing for the project shall be galvanized with a non-reflective finish.

Protocol: At least 60 days prior to ordering the fencing the project owner shall submit to the CPM for review and approval the specifications for the fencing documenting that such fencing finish will be galvanized and non-reflective.

If the CPM notifies the project owner that revisions of the finish specifications are needed before the CPM will approve the submittal, the project owner shall submit to the CPM revised specifications.

The project owner shall not order the fencing until the project owner receives approval of the fencing submittal from the CPM.

The project owner shall notify the CPM within one week after the fencing has been installed and is ready for inspection.

Verification: At least 60 days prior to ordering the galvanized non-reflective fencing, or a lesser period of time as mutually agreed to by the project owner and

the CPM, the project owner shall submit the specifications to the CPM for review and approval.

If the CPM notifies the project owner that revisions of the submittal are needed before the CPM will approve the submittal, within 30 days of receiving that notification, the project owner shall prepare and submit to the CPM a revised submittal.

The project owner shall notify the CPM within seven days after completing installation of the fencing that the fencing is ready for inspection.

VIS-3 Prior to first electricity generation, the project owner shall design and install all lighting such that light bulbs and reflectors are not visible from public viewing areas and illumination of the vicinity and the nighttime sky is minimized. To meet these requirements:

Protocol: The project owner shall develop and submit a lighting plan for the project to the CPM for review and approval. The lighting plan shall require that:

- Lighting is designed so that exterior light fixtures are hooded, with lights directed downward or toward the area to be illuminated and so that backscatter to the nighttime sky is minimized. The design of this outdoor lighting shall be such that the luminescence or light source is shielded to prevent light trespass into public view areas, the closest of which are State Route 33 and the residence along that highway;

- High illumination areas not occupied on a continuous basis such as maintenance platforms or the main entrance are provided with switches or motion detectors to light the area only when occupied;

- A lighting complaint resolution form (following the general format of that in attachment 1) will be used by plant operations, to record all lighting complaints received and document the resolution of those complaints. All records of lighting complaints shall be kept in the on-site compliance file.

If the CPM notifies the project owner that revisions of the plan are needed before the CPM will approve the plan, the project owner shall prepare and submit to the CPM a revised plan.

Lighting shall not be installed before the plan is approved. The project owner shall notify the CPM when the lighting has been installed and is ready for inspection.

Verification: At least 60 days before ordering the exterior lighting, or a lesser period of time as mutually agreed to by the project owner and the CPM, the project owner shall provide the lighting plan to the CPM for review and approval.

If the CPM notifies the project owner that any revisions of the plan are needed before the CPM will approve the plan, within 30 days of receiving that notification the project owner shall submit to the CPM a revised plan.

The project owner shall notify the CPM within seven days of completing exterior lighting installation that the lighting is ready for inspection.

AIR QUALITY

FEDERAL

Under the Federal Clean Air Act (42 USCA／7401 et seq.), there are two major components of air pollution control requirements for stationary sources, New Source Review (NSR) and Prevention of Significant Deterioration (PSD). NSR is a regulatory process for evaluation of those pollutants that violate federal ambient air quality standards. Conversely, PSD is a regulatory process for evaluation of those pollutants that do not violate federal ambient air quality standards. The NSR analysis has been delegated by the Environmental Protection Agency (EPA) to the San Joaquin Valley Unified Air Pollution Control District (District). The EPA determines the conformance with the PSD regulations. The PSD requirements apply only to those projects (known as major sources) that emit more than 100 tons per year for any pollutant.

STATE

The California State 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 cause injury, detriment, nuisance, or annoyance to any considerate 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.

LOCAL

The proposed project is subject to the following San Joaquin Valley Unified Air Pollution Control District (District) rules and regulations. For a more detailed discussion of the SJVUAPCD rules and compliance of the SCPP, please refer to the Determination of Compliance (SJVUAPCD 1999h).

RULE 2201 - NEW AND MODIFIED STATIONARY SOURCE REVIEW RULE

The main functions of the District s New Source Review Rule are to allow for the issuance of Authorities to Construct, Permits to Operate, the application of Best Available Control Technology (BACT) to new permit sources and to require the new permit source to secure emission offsets.

SECTION 4.1 - BEST AVAILABLE CONTROL TECHNOLOGY

The SJVUAPCD has determined the Best Available Control Technology for the emission generating equipment and is summarized in the following AIR QUALITY Table 20.

AIR QUALITY Table 20
BACT Determinations

Pollutant	Gas Turbine Engines
PM10	Air inlet filters, lube oil vent coalescer and opacity <5%, natural gas fuel
SO_2	Utility quality natural gas
NO_x	2.5 ppm @ 15% O_2, 1-hr average
VOC	1.2 ppm @ 15% O_2 3-hr average
CO	6 ppm @ 15% O_2 3-hr average

SECTION 4.1 - BEST AVAILABLE CONTROL TECHNOLOGY

Best Available Control Technology is defined as: a) has been contained in any State Implementation Plan and approved by EPA; b) the most stringent emission limitation or control technique that has been achieved in practice for a class of source, or c) any other emission limitation or control technique which the District s Air Pollution Control Officer (APCO) finds is technologically feasible and is cost effective. BACT will apply to any air pollutant that results in an emissions increase of 2 pounds per day. In the case of the Sunrise project, BACT will apply for NO_x, SO_2, PM10, VOC and CO emissions from all point sources of the project.

SECTION 4.2 - OFFSETS

Emissions offsets for new sources are required when those sources exceed the following emissions levels:

Sulfur oxides - 150 lbs/day
PM10 - 80 lb./day
Oxides of nitrogen - 10 tons/year
Volatile organic compounds - 10 tons/year

The Sunrise project exceeds all of the above emission levels; therefore offsets are required for all four of these pollutants. The emission offsets provided shall be adjusted according to the distance of the offsets from the project proposed site. The ratios are:

Within 15 miles of the same source - 1.2 to 1
15 miles or more from the source - 1.5 to 1

Section 4.2.5.3 allows for the use of interpollutant offsets (including PM10 precursors for PM10) on a case-by-case basis, provided that the Sunrise Cogeneration and Power Company (SCPC) demonstrates that the emissions increase will not cause a violation of any ambient air quality standard. The ratio for interpollutant trading shall be based on an air quality analysis and shall be equal to

or greater than the minimum offsetting requirements (the distance ratios) of this rule.

SECTION 4.3 - ADDITIONAL SOURCE REQUIREMENTS

Rule 4.3.2.1 requires that a new source not cause, or make worse, the violation of an ambient air quality standard as demonstrated through analysis with air dispersion models.

RULE 2520 — FEDERALLY MANDATED OPERATING PERMITS

Requires that a project owner file a Title V Operating Permit from EPA with the District within 12 months of commencing operation. A project is subject to this requirement if any of the following apply: the project is a major stationary source (under PSD definitions), it has the potential to emit greater than 100 tons per year of a criteria pollutant, any equipment permitted is subject to New Source Performance Standards, the project is subject to Title IV Acid Rain program, or the owner is required to obtain a PSD permit from EPA. The Title V permit application requires that the owner submit information on the operation of the air polluting equipment, the emission controls, the quantities of emissions, the monitoring of the equipment as well as other information requirements.

RULE 2540 — ACID RAIN PROGRAM

A project greater than 25 MW and installed after November 15, 1990, must submit an acid rain program permit application to the District. The acid rain requirements will become part of the Title V Operating Program (Rule 2520). The specific requirements for the Sunrise project will be discussed in the Compliance with LORS — Local later in this analysis.

RULE 4001 - NEW SOURCE PERFORMANCE STANDARDS

Specifies that a project must meet the requirements of the Federal New Source Performance Standards (NSPS) specified in Title 40, Code of Federal Regulations, Part 60, Chapter 1. Subpart GG, which pertains to Stationary Gas Turbines, requires that NO_x concentrations are a function of the heat rate of the combustion, which in this case would be approximately 116 ppmv at 15% O_2. In addition, the SO_2 concentration shall be less than 150 ppmv and the sulfur content of the fuel shall no greater than 0.8 percent by weight.

RULE 4101 - VISIBLE EMISSIONS

Prohibits air emissions, other than water vapor, of more than Ringelmann No. 1 (20 percent opacity) for more than 3 minutes in any one hour.

RULE 4201 - PARTICULATE MATTER CONCENTRATION

Limits particulate emissions from sources such as the gas turbines, cooling towers and emergency fire water pumps to less than 0.1 grain per cubic foot of exhaust gas at dry conditions.

RULE 4703 - STATIONARY GAS TURBINES

Limits NO_x concentrations to 12.2 ppm for the SCR controlled turbines. In addition there is a limit in CO concentrations of less than 200 ppm.

RULE 4801 - SO_2 CONCENTRATION

Limits the SO_2 concentration emitted into the atmosphere to no greater than 0.2 percent by volume.

RULE 8010 - FUGITIVE DUST ADMINISTRATIVE REQUIREMENTS FOR CONTROL OF FINE PARTICULATE MATTER (PM-10)

Specifies the types of chemical stabilizing agents and dust suppressant materials that can (and cannot) be used to minimize fugitive dust.

RULE 8020 - FUGITIVE DUST REQUIREMENTS FOR CONTROL OF FINE PARTICULATE MATTER (PM-10) FROM CONSTRUCTION, DEMOLITION, EXCAVATION, AND EXTRACTION ACTIVITIES

Requires that fugitive dust emissions during construction activities be limited to no greater than 40 percent opacity by means of water application or chemical dust suppressants. The rule also encourages the use of paved access aprons, gravel strips, wheel washers or other measures to limit mud or dirt carry-out onto paved public roads.

RULE 8030 - CONTROL OF PM10 FROM HANDLING AND STORAGE OF BULK MATERIALS

Limits the fugitive dust emissions from the handling and storage of materials. It specifies that bulk materials be transported using wetting agents, allow appropriate freeboard space in the vehicles, or be covered. It also requires that stored materials be covered or stabilized.

RULE 8060 - CONTROL OF PM10 FROM PAVED AND UNPAVED ROADS

Specifies the width of paved shoulders on paved roads or the use of chemical dust suppressants on unpaved roadways, shoulders and medians.

RULE 8070 - CONTROL OF PM10 FROM VEHICLE/EQUIPMENT PARKING, SHIPPING, RECEIVING, TRANSFER, FUELING AND SERVICE AREAS

This rule is intended to limit fugitive dust from unpaved parking areas by means of using water or chemical dust suppressants or the use of gravel. It also requires that the affected owners/operators shall remove tracked out mud and dirt onto public roadways once a day.

BIOLOGICAL RESOURCES

FEDERAL

ENDANGERED SPECIES ACT 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 protection of threatened and endangered plant and animal species, and their critical habitat.

MIGRATORY BIRD TREATY ACT

Title 16, United States Code, sections 703 - 712, prohibits the take of migratory birds.

STATE

CALIFORNIA ENDANGERED SPECIES ACT OF 1984

Fish and Game Code sections 2050 et seq. protects California s rare, threatened, and endangered species.

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 or any bird.

BIRDS OF PREY OR EGGS — TAKE, POSSESS, OR DESTROY

Fish and Game Code section 3503.5 protects California s birds of prey and their eggs by making it unlawful to take, possess, or destroy any 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 birds by making it unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird.

FULLY PROTECTED SPECIES

Fish and Game Code sections 3511, 4700, 5050, and 5515 prohibits take of animals that are classified as Fully Protected in California.

SIGNIFICANT NATURAL AREAS

Fish and Game Code section 1930 et seq. designates certain areas such as refuges, natural sloughs, riparian areas and vernal pools as significant wildlife habitat.

STREAMBED ALTERATION AGREEMENT

Fish and Game Code section 1600 et seq. requires CDFG to review project impacts to waterways, including impacts to vegetation and wildlife from sediment, diversions and other disturbances.

NATIVE PLANT PROTECTION ACT OF 1977

Fish and Game Code section 1900 et seq. designates state rare, threatened, and endangered plants.

CALIFORNIA CODE OF REGULATIONS

Title 14, sections 670.2 and 670.5 list animals of California designated as threatened or endangered.

LOCAL

KERN COUNTY GENERAL PLAN LAND USE, OPEN SPACE, AND CONSERVATION ELEMENTS OF 1994

SECTION 8, RESOURCES

Policy 14: Habitats of threatened and endangered species should be protected to the greatest extent possible.

KERN COUNTY GENERAL PLAN ENERGY ELEMENT OF 1990

PART 1 - ISSUES, GOALS, POLICIES, AND IMPLEMENTATION

Policy 12: The County should work closely with local, state, and federal agencies to assure that all projects, both discretionary and ministerial, avoid or minimize direct impacts to fish, wildlife and botanical resources, whenever practical.

Policy 13: The County should develop and implement measures which result in long-term compensation for wildlife habitat which is unavoidably damaged by energy exploration and development activities.

CULTURAL RESOURCES

FEDERAL

Portions of the routes proposed for the electric transmission lines go across land managed by the US Bureau of Land Management (BLM). Therefore the project may become an undertaking according to federal definition and the BLM would be involved as the lead federal agency for cultural and paleontologic resources. If cultural resource sites are identified on non-federal lands and they meet federal criteria for eligibility for listing in the National Register of Historic Places, then federal laws also would apply to these resources. Cultural resources are indirectly protected under provisions of the federal Antiquities Act of 1906 (Title 16, United States Code, ⁄ 431 et seq.) and subsequent related legislation, policies and enacting responsibilities, e.g. federal agency regulations and guidelines for implementation of the Antiquities Act.

- National Environmental Policy Act (NEPA): Title 42, United States Code, section 4321-et seq., requires federal agencies to consider potential environmental impacts of projects with federal involvement and to consider appropriate mitigation measures.

- Federal Land Policy and Management Act (FLPMA): Title 43, United States Code, Section 1701 et seq., requires the Secretary of Interior to retain and maintain public lands in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric water resource, and archeological values [Section 1701(a)(8)]; the Secretary, with respect to the public lands, shall promulgate rules and regulations to carry out the purposes of this Act and of other laws applicable to public lands [Section 1740].

- Federal Register 48 44739-44738 190 September 30, 1983: Federal Guidelines for Historic Preservation Projects: The US Secretary of the Interior has published a set of Standards and Guidelines for Archaeology and Historic Preservation. These are considered to be the appropriate professional methods and techniques for the preservation of archaeological and historic properties. The Secretary s standards and guidelines are used by federal agencies, such as the Forest Service, the Bureau of Land Management, and the National Park Service. The State Historic Preservation Office refers to these standards in its requirements for selection of qualified personnel and in the mitigation of potential impacts to cultural resources on public lands in California.

- Title 16 United States Code sec.106) Sets forth procedures to be followed for determining eligibility for nomination, the nomination, and the listing of cultural resources in the National Register of Historic Places (NHRP). The eligibility criteria and the process are used by federal, state, and local agencies in the evaluation of the significance of cultural resources. Very similar criteria and procedures are used

by the state in identifying cultural resources eligible for listing in the State Register of Historic Resources.

- Executive Order 11593, Protection of the Cultural Environment, May 13, 1971, (36 Federal Register, 8921) orders the protection and enhancement of the cultural environment through providing leadership, establishing state offices of historic preservation, and developing criteria for assessing resource values.

- American Indian Religious Freedom Act; Title 42, United States Code, Section 1996 protects Native American religious practices, ethnic heritage sites, and land uses.

- Native American Graves Protection and Repatriation Act (1990); Title 25, United States Code Section 3001, et seq. defines cultural items , sacred objects , and objects of cultural patrimony ; establishes an ownership hierarchy; provides for review; allows excavation of human remains, but stipulates return of the remains according to ownership; sets penalties; calls for inventories; and provides for the return of specified cultural items.

STATE

- Public Resources Code, Section 5020.1 defines several terms, including the following:

(j) Historical resource includes, but is not limited to, any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California.

(q) Substantial adverse change means demolition, destruction, relocation, or alteration such that the significance of an historical resource would be impaired.

- Public Resources Code, Section 5024.1 establishes a California Register of Historic Places; sets forth criteria to determine significance; defines eligible properties; and lists nomination procedures.

- Public Resources Code, Section 5097.5 states that any unauthorized removal or destruction of archaeologic or paleontologic resources on sites located on public land is a misdemeanor. As used in this section, public lands means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority or public corporation, or any agency thereof.

- Public Resources Code, Section 5097.98 defines procedures for notification of discovery of Native American artifacts or remains and for the disposition of such materials.

- Public Resources Code, section 5097.99 prohibits obtaining or possessing Native American artifacts or human remains taken from a grave or cairn and sets penalties for these actions.

- Public Resources Code, section 5097.991 states that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated.

- Public Resources Code, section 21000, et seq, California Environmental Quality Act (CEQA). This act requires the analysis of potential environmental impacts of proposed projects and requires application of feasible mitigation measures.

- Public Resources Code, section 21083.2 states that, if a project may affect a resource that has not met the definition of an historical resource set forth in section 21084, then the lead agency may determine whether a project may have a significant effect on unique archaeological resources; if so, an EIR shall address these resources. If a potential for damage to unique archaeological resources can be demonstrated, such resources must be avoided; if they can t be avoided, mitigation measures shall be required. The law also discusses excavation as mitigation; discusses the costs of mitigation for several types of projects; sets time frames for excavation; defines unique and non-unique archaeological resources ; provides for mitigation of unexpected resources; and sets financial limitations for this section.

- Public Resources Code, section 21084.1 indicates that a project may have a significant effect on the environment if it causes a substantial adverse change in the significance of a historic resource; the section further defines a historic resource and describes what constitutes a significant historic resource.

- CEQA Guidelines, Title 14, California Code of Regulations, section 15126.4 Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects , sub-section (b) Mitigation Measures Related to Impacts on Historical Resources . Subsection (b) discusses impacts of maintenance, repair, stabilization, restoration, conservation, or reconstruction of a historical resource. Subsection (b) discusses documentation as a mitigation measure. Subsection (b) discusses 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, Title 14, California Code of Regulations, section 15064.5 Determining the Significance of Impacts to Archaeological and Historical Resources . Subsection (a) defines the term historical resources . Subsection (b) explains when a project may be deemed to have a significant effect on historic resources and defines terms used in describing those situations. Subsection (c) describes CEQA s applicability to archaeological sites and provides a bridge

between the application of the terms historic resources and a unique archaeological resources .

- CEQA Guidelines, Title 14, California Code of Regulations, section 15064.7 Thresholds of Significance . This section encourages agencies to develop thresholds of significance to be used in determining potential impacts and defines the term cumulatively significant .

- CEQA Guidelines, Appendix G: Issue V: Cultural Resources . Lists four questions to be answered in determining the potential for a project to impact archaeological, historic, and paleontologic resources.

- California Penal Code, section 622.5. Anyone who willfully damages an object or thing of archaeological or historic interest can be found guilty of a misdemeanor.

- California Health and Safety Code, section 7050.5. If human remains are discovered during construction, the project owner is required to contact the county coroner.

- Public Resources Code, section 5097.98. If the county coroner determines that the remains are Native American, the coroner is required to contact the Native American Heritage Commission, which is then required to determine the Most Likely Descendant to inspect the burial and to make recommendations for treatment or disposition of the remains and any associated burial items.

LOCAL

Although the Energy Commission has pre-emptive authority over local laws, it typically ensures compliance with local laws, ordinances, regulations, standards, plans, and policies. The project site and associated linear facilities are all located within unincorporated portions of western Kern County.

KERN COUNTY

According to the Application for Certification (AFC), there are no applicable local LORS (SCPP 1998a). Kern County staff indicated that they do not have a specific county policy that addresses cultural resources but they do ensure compliance with CEQA for most projects (Forrest 1999). However, areas of the county where petroleum resources are located receive a special zoning designation and allowable uses are relatively unrestricted. Where the resource has already been developed, the county typically considers that the construction of new wells or oil field facilities or the modification of the surface for oil-related infrastructure, is a ministerial action and oil field activities are allowed to proceed with no additional environmental documentation (James 1999).

EFFICIENCY

FEDERAL

No federal laws apply to the efficiency of this project.

STATE

CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA requires that an environmental analysis be completed prior to determining whether to approve an Application for Certification of a power plant. This analysis must include an identification of the significant effects of a project on the environment, feasible mitigation measures, and alternatives to the project (Pub. Resources Code, / 21002.1).

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)). The Guidelines further require consideration of 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, Appendix F).

WARREN-ALQUIST ACT

The Warren-Alquist Act requires the submittal to the Energy Commission of an NOI prior to filing an AFC (Pub. Resources Code, / 25502); this NOI process commonly takes twelve months. Exemption from the NOI process is allowed for certain projects, including cogeneration plants (Pub. Resources Code, / 25540.6(a)(1)). Cogeneration, in turn, is defined in terms of efficiency standards (Pub. Resources Code, / 25134).

LOCAL

No local or county ordinances apply to power plant efficiency.

FACILITY DESIGN

The applicable LORS for each engineering discipline, civil, structural, mechanical and electrical are included as part of the engineering appendices, Appendix I and summarized in Section 9.0, Engineering (SCPC 1998a) of the Application for Certification. A summary of these LORS include: Title 24, California Code of Regulations, which adopts the current edition of the CBC as minimum legal building standards; the 1998 California Building Code (CBC) for design of structures; the 1996 Structural Engineers Association of California s Recommended Lateral Force Requirements, for seismic design; ASME-American Society of Mechanical Engineers Boiler and Pressure Vessel Code; and NEMA-National Electrical Manufacturers Association.

MECHANICAL LORS AND DESIGN CRITERIA

The Application for Certification (SCPC 1998a, Appendix I-3) lists and describes the mechanical codes, standards and design criteria that will be employed in project design documents, procurement specifications and contracts. Design work will be performed in accordance with the appropriate LORS. The Conditions of Certification **MECH-1** through **MECH-4** monitor compliance with this requirement.

GEOLOGICAL RESOURCES

The applicable LORS are contained in the Application for Certification (AFC), in Sections 8.14.5, 8.15.4, 18.16.1 and Appendix I Section 2.2 (SCPP 1998a). A brief description of the LORS (laws, ordinances, regulations, and standards) for geological hazards and resources, paleontological resources, and drainage and erosion control follows:

FEDERAL

There are no federal LORS for geological hazards and resources, or grading and erosion control. The United States Bureau of Land Management (BLM) requires an excavation permit for excavations and grading on land under their jurisdiction. A portion of the electric transmission line crosses land under BLM jurisdiction.

STATE AND LOCAL

The California Building Code (CBC) 1998 edition is based upon the Uniform Building Code (UBC), 1997 edition, which was published by the International Conference of Building Officials. The CBC is a series of standards that are used in investigation, design (Chapters 16 and 18) and construction (including grading and erosion control as found in Appendix Chapter 33). It is based upon the UBC, and includes supplemental standards specific to California. The CBC has been adopted by Kern County Engineering and Survey Services Department and supplements their grading and construction ordinances.

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.

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 geological hazards.

Sections (X) (a) and (b) pose questions about the project s affect on mineral resources.

The Standard Procedures, Measures for Assessment and Mitigation of Adverse Impacts to Non-renewable Paleontologic Resources (Society of Vertebrate Paleontology) are a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontological resources. They were adopted in October 1994 by a national organization of vertebrate paleontologists (the Society of Vertebrate Paleontologists).

Kern County Development Standards (dated August 1995) Division Four Section 401-1 (Standards for Drainage) and Division Eight, Sections 408-1 and 408-2 (Retention Basin Volume and Hydraulic Design) apply to the site.

HAZARDOUS MATERIALS HANDLING

FEDERAL

The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III and Clean Air Act of 1990 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 Act (codified in 40 C. F. R.,／68.110 et seq.) requires the states to implement a comprehensive system to inform local agencies and the public when a significant quantity of such materials is stored or handled at a facility. The requirements of these Acts are reflected in the California Health and Safety Code, section 25531 et seq.

STATE

The California Health and Safety Code, section 25534, directs facility owners who store or handle acutely hazardous materials in reportable quantities, to develop a Risk Management Plan (RMP) and to 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 pre-existing 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 requirement 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.

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 Government Code, section 65850.2, restricts the issuance of an occupancy permit to any new facility involving the handling of acutely hazardous materials until the facility has submitted an RMP to the administering agency with jurisdiction over the facility.

LOCAL AND REGIONAL

The Uniform Fire Code (UFC) contains provisions regarding the storage and handling of hazardous materials. These provisions are contained in Articles 79 and 80. The latest revision to Article 80 was in 1997 (UFC, 1997). These articles contain minimum setback requirements for the outdoor storage of ammonia.

The California Building Code contains requirements regarding the storage and handling of hazardous materials. The Chief Building Official must inspect and verify compliance with these requirements prior to issuance of an occupancy permit.

LAND USE

KERN COUNTY GENERAL PLAN

The general plan is the legal document that acts as a constitution for land use and development in Kern County. It consists of the seven mandatory elements: land use, circulation, open space, conservation, housing, safety and seismic safety, and noise; and four optional elements: recreation, energy, hazardous waste management, and public services and facilities. The following land use designations of the Kern County General Plan are specific to the proposed project.

LAND USE DESIGNATIONS

NONJURISDICTIONAL LAND

State and Federal Land. All property under the ownership and control of various state and federal agencies.

RESOURCE

Intensive Agriculture

Applies to areas devoted to the production of irrigated crops or having the potential for such use. Other agricultural uses may be consistent with the intensive agriculture designation. Minimum parcel size is 20 acres gross. Permitted uses include, but are not limited to:

Primary: irrigated cropland, orchards, vineyards, ranch and farm facilities, etc.; one single-family dwelling unit.

Compatible: livestock grazing, water storage, mineral and petroleum exploration and extraction, and public utility uses, etc., pursuant to provisions of the Zoning Ordinance.

Extensive Agriculture

Applies to agricultural uses involving large amounts of land with relatively low value-per-acre yields. Minimum parcel size is 80 acres gross, except lands not under Williamson Act Contract, in which case the minimum parcel size shall be 20 acres gross. Permitted uses include, but are not limited to:

Primary: livestock grazing, dry land farming, ranching facilities, wildlife and botanical preserves, timber harvesting, etc.; one single-family dwelling unit.

Compatible: irrigated croplands, water storage or ground water extraction, recharge areas, mineral, aggregate, and petroleum exploration, recreational activities, etc.

Mineral and Petroleum

Applies to area, which contains producing, or potentially productive, petroleum fields and mineral deposits. Uses are limited to activities directly associated with resource extraction. Minimum parcel size is 5 acres gross. Permitted uses include, but are not limited to:

Primary: mineral and petroleum exploration and extraction.

Compatible: extensive and intensive agriculture, mineral and petroleum processing, pipelines, power transmission facilities, communication facilities, equipment storage yards, and one single-family dwelling unit (subject to a Conditional Use Permit).

RESOURCE MANAGEMENT

Includes primarily open space lands containing important resource values such as wildlife habitat, scenic values, or watershed recharge areas. Other lands may include undeveloped, non urban areas that do not warrant additional planning within the foreseeable future because of current or anticipated population levels or marginal physical development. Minimum parcel size is 20 acres gross, except land subject to a Williamson Act Contract, in which case the minimum parcel size must be 80 acres gross. Permitted uses include, but are not limited to:

Primary: Recreational activities, livestock, grazing, dry land farming, ranching facilities, wildlife and botanical preserves, and timber harvesting; one single family dwelling unit.

Compatible: Irrigated croplands, water storage or groundwater recharge areas, mineral, aggregate, and petroleum exploration and extraction, and open space and recreational uses; one single family dwelling, land within development areas subject to significant physical constraints, and state and federal land which have been converted to private ownership.

SOLID WASTE FACILITIES

Includes existing or planned public, semi-public, or private solid waste facilities. Permitted uses include, but are not limited to the following:

Primary: Sanitary landfills, large volume transfer stations, waste-to-energy facilities, and non-hazardous oily waste disposal fields.

Compatible: Small volume transfer stations and septic disposal fields.

PHYSICAL CONSTRAINTS

Includes overlay zones denoting physical constraints. Those applicable include:

Seismic Hazard: Includes the Alquist-Priolo Special Study Zone and other active fault zones.

Flood Hazard: Based on the Flood Hazard Boundary Maps of the US Department of Housing and Urban Development and the Kern County Water Agency. These areas include, for example, flood channels and watercourses, riverbeds, and gullies. Development within these areas is subject to review by the County and will include conformity with adopted ordinances.

The following tables indicate the Kern County General Plan land use designations and existing land uses of the proposed project and transmission line corridor. Sunrise has eliminated Alternative Transmission Line Route A because it is not commercially viable.

GENERAL PLAN LAND USE DESIGNATIONS WITHIN THE STUDY AREA

Location or Linear Facility	Land Use Designation
Sunrise Cogen and Power Plant	Extensive Agricultural
Transmission line corridor	Extensive Agriculture/ Mineral and Petroleum
Steam Injection and Production Wells	Extensive Agriculture/ Mineral and Petroleum

EXISTING LAND USES WITHIN THE STUDY AREA

Location or Linear Facility	Existing Land Uses
Sunrise Cogen and Power Plant	Undeveloped/Oil Wells/Abandoned Steam Units
Transmission line corridor (B,D,E,F)	BLM lands/ Lokern Natural Area/California Aqueduct/West Side Canal/ Kern County Flood Levee/Agricultural lands/Oil Production/Undeveloped/Residential/ PG&E Midway Substation
Steam Injection and Production Wells	Undeveloped/Oil Wells

LAND USE PLANS AND POLICIES RELATED TO THE SUNRISE COGENERATION AND POWER PLANT

The following provisions of the Kern County General Plan are specific to the proposed project. Please refer to the **Socioeconomic Resources, Air Quality, Noise, Public Health,** and **Hazardous Materials** sections of the Final Staff Assessment (FSA) for a discussion of the applicable policies of the Public Facilities Element of the Kern County General Plan. Please refer to the **Biological Resources, Cultural and Paleontological Resources** sections of the FSA for a discussion of the applicable policies of the U.S. Fish and Wildlife Service and the Caliente Resource Management Plan.

NONJURISDICTIONAL LAND

Coordination and cooperation will be promoted among the County, the incorporated cities and the various special districts where their planning decisions and actions affect more than a single jurisdiction (Policy No. 1).

Land under state and federal jurisdiction will be considered as land designated for Resource Management on the General Plan map (Policy No. 4).

PHYSICAL CONSTRAINTS

Kern County will not permit new developments to be sited on land that is environmentally unsound to support such development (Policy No. 1).

Development will not be allowed in natural hazard areas, pending the adoption of ordinances that establish conditions, criteria and standards in order to minimize risk to life and property posed by those risks (Policy No. 2).

Zoning and other land use controls will be used to regulate and, in some instances, to prohibit development in hazardous areas (Policy No. 3).

New development will not be permitted in areas of landslide or slope instability as designated in the Safety and Seismic Safety Element of the General Plan, and as mapped on the Kern County Seismic Hazard Atlas (Policy No. 6).

Regardless of percentage of slope, development on hillsides will be sited in the least obtrusive fashion, thereby minimizing the extent of topographic alteration required (Nonjurisdictional Land - Policy No. 1, p. 1 - Policy no. 9)

Development proposed in areas with steep slopes will be reviewed for conformity to the adopted Hillside Development Ordinance to ensure that appropriate stability, drainage, and sewage treatment will result (Policy No. 10).

Designated flood channels and watercourses, such as creeks, gullies, and riverbeds, will be preserved as resource management areas or, in the case of the urban areas, as linear parks (Policy No. 12).

New development will be required to demonstrate the availability of adequate fire protection and suppression facilities (Policy No. 13).

Kern County will evaluate the potential noise impacts of any development-siting action or of any applications it acts upon that could significantly alter noise levels in the community and will require mitigative measures where significant adverse effects are identified (Policy No. 14).

The air quality effects of a proposed land use will be considered when evaluating development proposals (Policy No. 15).

Kern County will disapprove projects found to have significant adverse effects on Kern County s air quality, unless the Board of Supervisors, Board of Zoning Adjustment, or the Director of Planning and Development Services, acting as Hearing Officer or Parcel Map Advisory Agency makes findings under CEQA (Policy No. 16).

RESOURCE

Areas designated agricultural use, which include Class I and II agricultural soils with surface water delivery systems, will be protected against residential and commercial subdivision and development activities (Policy No. 1).

Areas identified by the Soil Conservation Service as having high range-site value will be reserved for extensive agricultural use, or as resource reserves if located within a County water district (Policy No. 2).

In areas with a Resource designation on the General Plan map, only industrial activities which directly and obviously relate to the exploration, production, and transportation of the particular resource will be considered to be consistent with this plan (Policy No. 4).

Development will be constrained, pending adoption of ordinances which establish conditions, criteria, and standards, in areas containing valuable resources in order to protect the access to and economic use of these resources (Policy No. 9).

Agriculture and other resources will be considered a compatible use in areas designated for Mineral and Petroleum Resource uses on the General Plan until such time as the oil activities become too intensive to enable other resource uses to continue (Policy No. 10).

Rivers and streams in the County are important visual and recreational resources and wildlife habitats. Areas of riparian vegetation along rivers and streams, will therefore, be preserved when feasible to do so (Policy No. 11).

The County will maintain and enhance air quality for the health and well-being of County residents by encouraging land uses which promote air quality and good visibility (Policy No. 13).

Habitats of threatened or endangered species should be protected to the greatest extent possible (Policy No. 14).

Areas designated as Resource Reserve, Extensive Agriculture, and Resource Management which are presently under Williamson Act Contracts will have a minimum parcel size of 80 acres until such time as a contract expires or is canceled, at which time the minimum parcel size will become 20 acres (Policy No. 15).

The County will encourage development of alternative energy sources by tailoring its Zoning and Subdivision Ordinances and building standards to reflect Alternative Energy Guidelines published by the California State Energy Commission (Policy No. 17).

GENERAL PROVISIONS

Prior to issuance of any development or use permit, the County shall make the finding, based on information provided by California Environmental Quality Act (CEQA) documents, staff analysis, and the applicant, that adequate public or private services

and resources are available to serve the proposed development. The developer shall assume full responsibility for costs incurred in service extensions or improvements that are required as a result of the proposed project (Policy No. 3).

The air quality implications of new development will be considered in approval of major developments or area wide land use designations (Policy No. 15).

The County will promote the preservation of designated historic buildings and the protection of cultural resources which provide ties with the past and constitute a heritage value to residents and visitors (Policy No. 16).

Maintain the County s inventory of areas of potential cultural and archaeological significance (Implementation G).

ENERGY ELEMENT OF THE KERN COUNTY GENERAL PLAN

The County shall encourage the development and upgrading of transmission lines and associated facilities (e.g., substations) as needed to serve Kern County s residents and access the County s generating resources, insofar as transmission lines do not create significant environmental or public health and safety hazards (Policy No. 1).

The County shall review proposed transmission lines and their alignments for conformity with the Land Use Element of the Kern County General Plan (Policy No. 2).

In reviewing proposals for new transmission lines and/or capacity, the County shall assert a preference for upgrade of existing lines and use of existing corridors where feasible (Policy No. 3).

The County shall work with other agencies in establishing routes for proposed transmission lines (Policy No. 4).

The County shall discourage the siting of aboveground transmission lines in visually sensitive areas (Policy No. 5).

The County should encourage new transmission lines to be sited/configured to avoid or minimize collision and electrocution hazards to raptors (Policy No. 6).

The County should monitor the supply and demand of electrical transmission capacity locally and statewide (Implementation A).

The County shall continue to maintain provisions in the Zoning Ordinance and update as necessary to provide for transmission line development (Implementation B).

MCKITTRICK RURAL COMMUNITY PLAN

The McKittrick Rural Community Plan has been developed using the criteria, goals, policies, and implementing ordinances of the Kern County General Plan.

Programs and document framework for the McKittrick Plan are the same as those used in the Kern County General Plan.

BUTTONWILLOW COMMUNITY DEVELOPMENT PLAN

Open Space

Encourage continuing dual use of transmission line easements as open space or possibly greenbelt areas (Implementation. P. 23).

Continuance of land use contracts under the provisions of the Williamson Act and maintenance of the A (Exclusive Agricultural) zoning classification for agricultural lands (Implementation, P. 25).

Encourage continuance of land use contracts under the provisions of the California Land Conservation Act of 1965, as amended, and commonly referred to as The Williamson Act (Implementation, P. 30).

KERN COUNTY ZONING CODE

The Kern County Zoning Ordinance was adopted in July 1997. The ordinance implements the Kern County General Plan by applying development standards and construction requirements on land as it is developed within the unincorporated areas of the county. The following divisions of the Kern County Zoning Ordinance apply to the project.

ZONING DISTRICTS

EXCLUSIVE AGRICULTURE (A)

Areas that are suitable for agricultural uses. This designation is designed to prevent the encroachment of incompatible uses onto agricultural lands and the premature conversion of such lands to non-agricultural uses. Permitted uses in the A District are limited primarily to agriculture and other activities compatible with agriculture.

LIMITED AGRICULTURE (A-1)

Areas that are suitable for a combination of estate-type residential development, agricultural uses, and other compatible uses.

LOW-DENSITY RESIDENTIAL (R-1)

Areas that are suitable for traditional smaller lot, single-family homes and compatible uses. Maximum density is limited to ten dwelling units per net acre.

MEDIUM-DENSITY RESIDENTIAL (R-2)

Areas that are suitable for single-family duplex, and other medium-density, multifamily residential uses. Maximum density is limited to 16 dwelling units per net acre.

FLOODPLAIN COMBINING DISTRICT (FP)

Applied to those areas lying within Zone A on the Flood Insurance Rate Maps (FIRM). Permitted uses in an FP District are those uses permitted by the base district with which the FP District is combined.

NATURAL RESOURCE (NR)

Lands with this designation are productive or potentially productive petroleum, mineral, or timber resource areas; the designation is designed to prevent the encroachment of incompatible uses onto such lands. Uses in the NR District are limited to resource exploration, production and transportation, and to compatible activities.

The following table indicates the zoning designation of the project site and land within the areas of the proposed transmission line corridor.

Project Zoning Designations And Affected Land Area

Location or Linear Facility	Zoning Designations
Sunrise Project	A
Transmission Line Routes, B, D, E, F	A, A1,FP,NR, R-1, R-2
Valley Acres Substation	A
Steam Production and Injection Wells	A, A-1, NR

The following chapters of the Kern County Zoning Ordinance apply to the project. Section 19.80.30 of Chapter 19.80 (Special Development Standards — Commercial and Industrial Districts); Sections 19.82.030 and 19.82.090 of Chapter 19.82 (Offstreet Parking - Design and Development Standards); and Section 19.86.060 of Chapter 19.86 (Landscaping Standards — Industrial Uses).

NEED

STATE

CALIFORNIA CODE OF REGULATIONS

The Commissions Siting Regulations state The presiding member s proposed decision shall contain the presiding member s recommendation on whether the application shall be approved, and proposed findings and conclusions on each of the following: (a) Whether and the circumstances under which the proposed facilities are in conformance with the 12-year forecast for statewide and service area electric power demands adopted pursuant to Section 25309(b) of the Public Resources Code. (Cal. Code of Regs., tit. 20,／1752(a).)

PUBLIC RESOURCES CODE

The Energy Commission s Final Decision must include, among other things, Findings regarding the conformity of the proposed facility with the integrated assessment of need for new resource additions determined pursuant to subdivision (a) to (f), inclusive, of Section 25305 and adopted pursuant to Section 25308 or, where applicable, findings pursuant to Section 25523.5 regarding the conformity of a competitive solicitation for new resource additions determined pursuant to subdivisions (a) to (f), inclusive, of Section 25305 and adopted pursuant to Section 25308 that was in effect at the time that the solicitation was developed. (Pub. Resources Code,／25523(f).)

NEED CONFORMANCE CRITERION

In order to obtain a license from the Energy Commission, a proposed power plant must be found to be in conformance with the Integrated Assessment of Need. The criterion governing this determination, for projects deemed data adequate prior to July 1, 1999, are contained in the *1996 Electricity Report (ER 96)*, and are most succinctly described on page 72 of that document:

In sum, the *ER 96* need criterion is this: during the period when *ER 96* is applicable, proposed power plants shall be found in conformance with the Integrated Assessment of Need (IAN) as long as the total number of megawatts permitted does not exceed 6,737.

NOISE

FEDERAL

Under the Occupational Safety and Health Act of 1970 (29 USC ⁄651 et seq.), the Department of Labor, Occupational Safety and Health Administration (OSHA) has adopted regulations (29 CFR ⁄1910.95) that establish maximum noise levels to which workers at a facility may be exposed. These 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 during which the worker is exposed. OSHA regulations also dictate hearing conservation program requirements and workplace noise monitoring requirements.

There are no federal laws governing offsite (community) noise.

STATE

Similarly, there are no state regulations governing offsite (community) noise. Rather, state planning law (Gov. Code, ⁄65300) requires that all counties and cities prepare and adopt a General Plan. Government Code section 65302(f) requires that a noise element be prepared as part of the General Plan. This element is to address existing and foreseeable noise problems . Other state laws, ordinances, regulations and standards (LORS) include the California Environmental Quality Act (CEQA) and the California Occupational Safety and Health Act (Cal-OSHA).

CAL-OSHA

As a result of the passage of Cal-OSHA the California Occupational Safety and Health Administration (Cal-OSHA) has promulgated Occupational Noise Exposure Regulations (Cal. Code Regs., tit. 8, ⁄5095 et seq.) that set employee noise exposure limits. These standards are equivalent to the federal OSHA standards described above.

CEQA

CEQA requires that significant environmental impacts be identified, and that such impacts be eliminated or mitigated to the extent feasible. The applicable CEQA Guidelines (Cal. Code Regs., tit. 14, ⁄15000 et seq., Appendix G ⁄XI) explain that a significant effect from noise may exist if a project would result in:

(a) Exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

(b) Exposure of persons to, or generation of, excessive ground vibration or ground-borne noise levels.

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

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

LOCAL

KERN COUNTY GENERAL PLAN - NOISE ELEMENT

Kern County has established environmental noise limits based on the land use of the property receiving the noise. The permissible noise levels are outlined below.

NOISE: Table 1
Kern County General Plan-Noise Element

Land Use Category	Maximum Permissible Sound Level		
	L_{50} (Day)	L_{50} (Night)	CNEL
Non-sensitive Land Uses	65	60	75
Moderately Sensitive Land Uses	60	55	70
Sensitive Land Uses	55	45	65
Highly Sensitive Land Uses	50	40	60

The noise sensitive receptors near the Sunrise project site include residences within Derby Acres. According to the Kern County Noise Element, these single-family rural dwellings would be classified as Highly Sensitive Land Uses. As such, the maximum allowable noise level from the Sunrise project at the residential properties is the L_{50} (Night) of 40 dBA.

PUBLIC HEALTH

FEDERAL

The Clean Air Act of 1970 (42 U.S.C., section 7401 et seq.) required establishment of ambient air quality standards to protect the public from the effects of air pollutants. These standards have been established by the United States Environmental Protection Agency (EPA) for the major air pollutants, nitrogen dioxide, ozone, sulfur dioxide, carbon monoxide, sulfates, particulate matter with a diameter of 10 micron or less (PM10) and lead. The Act required states to adopt plans to ensure compliance by 1982.

STATE

California Health and Safety Code section 39606 requires the California Air Resources Board (CARB) to establish California s ambient air quality standards to reflect the California-specific conditions that influence its air quality. Such standards have been established by the CARB for ozone, carbon monoxide, and sulfur dioxide, PM10, lead, hydrogen sulfide, vinyl chloride and nitrogen dioxide. The same biological mechanisms underlie some of the health effects of most of these and the noncriteria pollutants. The California standards are listed together with the corresponding federal standards in the **Air Quality** section.

California Health and Safety Code section 41700 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 business or property.

The California Health and Safety Code section 39650 et seq.mandates the California Environmental Protection Agency (Cal-EPA) to establish safe exposure limits for toxic, noncriteria air pollutants and identify the best available methods for their control. These laws also require that the new source review rules for each air district include regulations establishing procedures to control the emission of these pollutants. The toxic emissions from natural gas combustion are listed in CARB s April 11, 1996 California Toxic Emissions Factors (CATEF) database for natural gas-fired combustion turbines. Cal-EPA has developed specific cancer potency estimates for assessing their related cancer risks at specific exposure levels. For noncancer-causing toxic air pollutants, Cal-EPA established specific no-effects levels (known as reference exposure levels) for assessing the likelihood of producing health effects at specific exposure levels. Such health effects would be considered likely only when exposure exceeds these reference levels. Staff uses these Cal-EPA potency estimates and reference exposure values in its health risk assessments.

California Health and Safety Code section 44300 et seq. requires facilities, which emit large quantities of criteria pollutants and any amount of noncriteria pollutants to provide

the local air district an inventory of toxic emissions. Such facilities may also be required to prepare a quantitative health risk assessment to address the potential health risks involved. The CARB and the air quality management districts (Air Districts) are responsible for implementing these requirements for new emission sources.

LOCAL

The San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) has no specific rules implementing Health and Safety Code section 44300. It does, however, require the results of a health risk assessment as part of the application for the Authority to Construct (ATC). SCPP has complied with this requirement.

RELIABILITY

Presently, there are no laws, ordinances, regulations or standards (LORS) that establish either power plant reliability criteria or procedures for attaining reliable operation. However, 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)).

SOCIOECONOMIC RESOURCES

FEDERAL

Executive Order 12898, Federal Actions to address Environmental Justice (EJ) in Minority Populations and Low-Income Populations. The order focuses federal attention on the environment and human health conditions of minority communities and directs agencies to achieve environmental justice as part of this mission. The Executive Order requires the US Environmental Protection Agency (EPA) and all other federal agencies (as well as state agencies receiving federal funds) to develop strategies to address this problem. Agencies are required to identify and address any disproportionately high and/or adverse human health or environmental effects of their programs, policies, and activities on minority and/or low-income populations. The Energy Commission receives federal funds and is thus subject to this Executive Order.

STATE

CALIFORNIA GOVERNMENT CODE, SECTION 65996-65997

As amended by SB 50 (Stats. 1998, ch. 407, sec. 23), states that public agencies may not impose fees, charges or other financial requirements to offset the cost for school facilities.

LOCAL

Kern County General Plan - Public facilities component pertinent to Socioeconomics.

(Policy No. 8) In evaluating a development application, Kern County will consider impacts on the local school districts.

(Implementation E) Determine the local cost of facility and infrastructure improvements and expansion which are necessitated by new development of any type and prepare a schedule of charges to be levied on the developer at the time of approval of the Final Map.

SOIL AND WATER RESOURCES

FEDERAL

WATER POLLUTION CONTROL ACT AND CLEAN WATER ACT

The Clean Water Act (33 USC section 1257 et seq.) requires states to set standards to protect water quality. Point source discharges to surface water are regulated by this act through requirements set forth in specific or general National Pollutant Discharge Elimination System (NPDES) permits. Stormwater discharges during construction of a facility and incidental non-stormwater discharges associated with pipeline construction also fall under this act, and are addressed through a general NPDES permit. In California, the nine Regional Water Quality Control Boards (RWQCB) administer the requirements of the Clean Water Act. The Central Valley Regional Water Quality Control Board has permitting authority for the project area and sets forth administrative policies and procedures for protecting water quality in the Water Quality Control Plan for the Tulare Lake Basin (1995).

LOCAL

KERN COUNTY CODE OF BUILDING REGULATIONS

Chapter 17.28 of the County Code of Building Regulations sets forth grading requirements for certain types of land disturbance activities, including those types associated with the proposed project.

KERN COUNTY GENERAL PLAN (1994)

The general plan is the guiding document for land use and development within the county. Policies within the (Kern County 1994) pertaining to soil and water resources include:

> Prior to the issuance of any building or grading permits, the method of water supply and sewage disposal shall be as required by the Kern County Environmental Health Services Department.

WEST KERN WATER DISTRICT

The Sunrise Cogeneration and Power Project lies within the boundary of the West Kern Water District (WKWD). This water district covers approximately 250 square miles of western Kern County and serves a population of approximately 25,000 people, residing in the Cities of Taft and Maricopa, as well as a number of unincorporated communities (WKWD 1997). The district also has approximately 400 connections for industrial users. The district s water supply is groundwater, deliveries from the State Water Project and mutual agreements with other water agencies in Kern County (LPLG 1998a). In water year 1995-1996, total water district water demand was 13,239-acre feet of water.

WKWD is entitled to 25,000 acre-feet of State Water Project water per year through a contract with the Kern County Water Agency. An additional 10,000-acre-feet of State Water Project, known as interruptible water is also available to the district during wet years (WKWD 1997). WKWD receives the majority of its water through an in-lieu groundwater banking and pumping program with the Buena Vista Water District (BVWD). The BVWD water supply is groundwater and Kern River water. As part of the exchange, BVWD takes WKWD water from the California Aqueduct instead of pumping local groundwater (WKWD 1997). WKWD then can pump or bank a volume of groundwater that BVWD would have otherwise pumped. During high runoff years when flows in the Kern River are sufficient to meet its needs, BVWD can choose not to take the State Water Project water. At these times, WKWD is not entitled to pump groundwater.

The availability of State Water Project supplies is variable and subject to cutbacks during drought years. The district attempts each year to take the maximum amount of State Water Project available. The average volume of water banked by the District since 1979 is 11,468 acre-feet per year and the total water currently banked at the end of 1995-1996 water year is estimated at 216,503 (WKWD 1997; LPGP 1998a).

The District s well field is located approximately 15 miles northeast of Taft in the Tupman area (WKWD 1997). Sediments here are derived from the Kern River fan. The thickness of the fresh groundwater bearing sediments beneath the well field are estimated to be about 800 feet thick. This aquifer appears to be generally unconfined, with some small clay lenses providing very localized confined conditions. Recharge is through the use of spreading ponds and natural recharge from the Kern River. Groundwater quality is good, with TDS levels of 290 mg/l (WKWD 1997).

Total peak production capacity of the six active wells is 99 acre-feet per day, but maximum daily usage averages approximately 41.5 acre-feet per day (WKWD 1997). The district has another agreement with the BVWD to pump 3,000 acre-feet of groundwater per year. This water cannot be banked and therefore the district uses this water first (WKWD 1997). The district must recharge the basin for the amounts pumped in excess of 3,000-acre feet. Average basin recharge between 1979 and 1996 has been 11,250 acre-feet (WKWD 1997). Because of water treatment requirements, groundwater is provided for all domestic uses.

TRAFFIC AND TRANSPORTATION

FEDERAL

The federal government addresses transportation of goods and materials in Title 49, Code of Federal Regulations:

Title 49, Code of Federal Regulations, section 171-177, governs the transportation of hazardous materials, the type of materials defined as hazardous, and the marking of the transportation vehicles.

Title 49, Code of Federal Regulations, section 350-399, and Appendices A-G, Federal Motor Carrier Regulations, addresses safety considerations for the transport of goods, materials and substances over public highways.

STATE

The California Vehicle Code and the Streets and Highways Code contain requirements applicable to the licensing of drivers and vehicles, the transportation of hazardous materials and right-of-way. In addition, the California Health and Safety Code addresses the transportation of hazardous materials. Specifically, these codes include:

California Vehicle Code, section 353 defines hazardous materials.

California Vehicle Code, sections 31303-31309 regulate the highway transportation of hazardous materials, the routes used, and restrictions thereon.

California Vehicle Code, sections 31600-31620 regulate the transportation of explosive materials.

California Vehicle Code, sections 32000-32053, regulate the licensing of carriers of hazardous materials and include noticing requirements.

California Vehicle Code, sections 32100-32109, establish special requirements for the transportation of inhalation hazards and poisonous gases.

California Vehicle Code, sections 34000-34121, establish special requirements for the transportation of flammable and combustible liquids over public roads and highways.

California Vehicle Code, sections 34500 et seq., regulate the safe operation of vehicles, including those that are used for the transportation of hazardous materials.

California Vehicle Code, sections 2500-2505, authorize the issuance of licenses by the Commissioner of the California Highway Patrol for the transportation of hazardous materials including explosives.

California Vehicle Code, sections 13369, 15275, and 15278, address the licensing of drivers and the classifications of licenses required for the operation of particular types of vehicles. In addition, these sections require the possession of certificates permitting the operation of vehicles transporting hazardous materials.

California Streets and Highways Code, sections 117 and 660-72, and California Vehicle Code 35780 et seq., require permits for the transportation of oversized loads on county roads.

California Streets and Highways Code, sections 660, 670, 1450, 1460 et seq., and 1480 et seq., regulate right-of-way encroachment and the granting of permits for encroachment on state and county roads.

California Health and Safety Code, section 25160 et seq., address the safe transport of hazardous materials.

LOCAL

KERN COUNTY

The Circulation Element of the Kern County General Plan sets up local goals and guidance policies about building and transportation improvements. It introduces planning tools essential for achieving the local transportation goals and policies (County of Kern, 1972). Relevant goals and policies include, in part, the following:

PRIVATE DEVELOPMENT ACCESS TO EXISTING ROADWAY NETWORK

As a condition of private development approval, developers shall build roads needed to access the existing road network (Policy No. 1).

GROWTH BEYOND 2010

The County should monitor traffic volumes and patterns on County major highways (Policy No. 1).

Development applications must demonstrate that sufficient transportation capacity is available to serve the proposed project at Level of Service D (LOS D) or better.

TRUCKS ON HIGHWAYS

Make California Department of Transportation (Caltrans) aware of heavy truck activity on Kern County s roads (Policy No. 1).

Start a program that monitors truck traffic operations (Policy 2).

Promote a monitoring program of truck traffic operations (Policy 2).

TRUCKS ROUTES

The Transportation Management Department should oversee truck travel patterns and be aware of locations where heavy trucks traverse residential areas (Policy No. 1).

TRANSPORTATION OF HAZARDOUS MATERIALS

State maintained highways are acceptable as commercial hazardous waste transportation routes (Policy No. 1).

Kern County and affected cities should reduce use of county maintained roads and city maintained streets for transportation of hazardous materials (Policy No. 3).

Restrict commercial transportation of hazardous materials in accordance with Vehicle Code, section 31303 (Policy No. 4). This circulation element recommends charting routes where hazardous material shipments can be transported.

ROAD PAVEMENT DAMAGE

The County shall continue to maintain pavement conditions and check operating conditions by collection and review of traffic flow and accident data to rate the circulation system (Policy No. 1).

REGIONAL TRANSPORTATION PLAN

The Kern County Council of Governments (COG) has prepared an RTP establishing transportation goals, policies, objectives, and actions for various modes of transportation. The RTP is a long-range (20-year) plan that assesses the environmental impacts of proposed projects, establishing air quality conformity as required by federal regulations and discussing intermodal and multimodal transportation activities. The Kern County COG adopted the current RTP in September 1998.

TRANSPORTATION IMPROVEMENT PLAN

The Kern County COG is required by federal law to develop and publish a TIP at least every two years. The TIP is a short-range (7-year) program that incrementally implements the RTP. The TIP consists of project lists from the State Transportation Improvement Program (STIP) for urbanized and non-urbanized areas as well as other programs using state and/or federal funding. The Kern County COG adopted the current TIP in September 1998.

CONGESTION MANAGEMENT PLAN

The Kern County COG has prepared a Congestion Management Plan (CMP) to insure that a balanced transportation system is developed relative to population and traffic growth, land use decisions, LOS performance standards, and air quality improvement. The CMP is intended to be an integral and complementary part of Kern County s plans and programs, and must be updated every two years. The Kern County COG adopted the current CMP in 1996; the 1998 CMP update is in progress.

TRANSMISSION LINE SAFETY AND NUISANCE

FEDERAL

AVIATION SAFETY

Any hazard to area aircraft relates to the potential for collision with the line in the navigable air space. The applicable LORS are intended to ensure the distance and visibility necessary to avoid such collision.

Title 14, Part 77 of the Federal Code of Regulations (CFR), Objects Affecting the Navigation Space . Provisions of these regulations specify the criteria used by the Federal Aviation Administration (FAA) for determining whether a Notice of Proposed Construction or Alteration is required for potential obstruction hazards. 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. Such notification allows the FAA to ensure that the structure is located to avoid any significant collision hazard to area aviation.

FAA Advisory Circular (AC) No. 70/460-2H, Proposed Construction and or Alteration of Objects that may Affect the Navigation Space . This circular informs each proponent of a project that could pose an aviation hazard of the need to file the Notice of Proposed Construction or Alteration (Form 7640) with the FAA.

FAA AC No. 70/460-1G, Obstruction Marking and Lighting . This circular 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

Transmission line-related radio-frequency interference is one of the indirect effects of line operation and is produced by the physical interactions of line electric fields. The level of such interference usually depends on the magnitude of the electric fields involved. Because of this, the potential for such impacts can be assessed from field strength estimates obtained for the line. The following regulations are intended to ensure that such lines are located away from areas of potential interference and that any interference is mitigated whenever it occurs.

Federal Communications Commission (FCC) regulations in Title 47 CFR, Section 15.25. Provisions of these regulations prohibit operation of any devices producing force fields, which interfere with radio communications, even if (as with transmission lines) such devices are not intentionally designed to produce radio-frequency energy. Such interference is due to the radio noise produced by 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 as perceivable interference with 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 FCC requires each line operator to mitigate all complaints about interference on a case-specific basis. Staff usually recommends specific conditions of certification to ensure compliance with this FCC requirement. Since electric fields cannot penetrate the soil and other objects, underground lines do not produce the radio noise associated with overhead lines.

STATE

General Order 52 (GO-52), California Public Utilities Commission (CPUC). Provisions of this order govern the construction and operation of power and communications lines and specifically deal with measures to prevent or mitigate inductive interference. Such interference is produced by the electric field induced by the line in the antenna of a radio signal receiver.

Several design and maintenance options are available for minimizing these electric field-related impacts. When incorporated in the line design and operation, such measures also serve to reduce the line-related audible noise discussed below.

AUDIBLE NOISE

As with radio noise, any audible noise from a transmission line 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. Since (as with communications interference), the noise level depends on the strength of the line electric field, the potential for occurrence can be assessed from estimates of the field strengths expected during operation. Such noise is usually generated during wet weather and from lines of 345 kV or higher. It therefore, is generally not expected at significant levels from lines of less than 345 kV, such as the one proposed for Sunrise. Research by the Electric Power Research Institute (EPRI 1982) has validated this 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.

FIRE HAZARDS

The fires addressed through the following regulations 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.

General Order 95 (GO-95), CPUC, Rules for Overhead Electric Line Construction . This order specifies tree-trimming criteria to minimize the potential for power line-related fires.

Title 14 Section 1250 of the California Code of Regulations, Fire Prevention Standards for Electric Utilities . This code specifies utility-related measures for fire prevention.

HAZARDOUS SHOCKS

The hazardous shocks addressed by the following regulations and standards are those that could result from direct or indirect contact between an individual and the energized line. Such shocks are capable of serious physiological harm or death and remain a driving force in the design and operation of transmission and other high-voltage lines.

GO-95, CPUC. Rules for Overhead Line Construction . These rules specify uniform statewide requirements for overhead line construction regarding ground clearance, grounding, maintenance and inspection. Implementing these requirements usually ensures the safety of the general public and utility and non-utility workers.

GO-128 Rules for Construction of Underground Electric Supply and Communications Systems . Provisions of this order establish requirements and minimum standards for the safe construction of underground AC power and communications circuits.

Title 8, CCR, Section 2700 et seq., High Voltage Electric Safety Orders . These safety orders establish essential requirements and minimum standards for safely installing, operating, and maintaining electrical installations and equipment. Compliance with the distancing requirements in this order will prevent hazardous shocks among utility and non-utility workers during activities around the line.

National Electrical Safety Code, (NESC) Part 2: Safety Rules for Overhead Lines. Provisions in this part of the code specify the national safe operating clearances applicable in areas where the line might be accessible to the public. Such requirements are intended to minimize the potential for direct or indirect contact with the energized line.

LOCAL

There are no local laws or regulations specifically aimed at the physical structure or dimensions of electric power lines to limit their obstruction or hazardous shock hazards, or eliminate the interactive effects of their electric or magnetic fields. All the noted LORS are implemented industry wide in the country to ensure that lines are uniformly constructed to reflect existing health and safety information while ensuring efficiency and reliability.

TRANSMISSION SYSTEM ENGINEERING

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, operation or use of overhead electric lines and to the public in general.

CPUC Rule 21 provides standards for the reliable connection of parallel generating stations connected to participating transmission owners.

Western Systems Coordinating Council (WSCC) Reliability Criteria provides the performance standards used in assessing the reliability of the interconnected system. These Reliability Criteria require the continuity of service to loads as the first priority and preservation of interconnected operation as a secondary priority. The WSCC Reliability Criteria includes the Reliability Criteria for Transmission System Planning, Power Supply Design Criteria, and Minimum Operating Reliability Criteria. Analysis of the WSCC system is based to a large degree on WSCC Section 4 Criteria for Transmission System Contingency Performance which requires that the results of power flow and stability simulations verify established performance levels.

Performance levels are defined by specifying the allowable variations in voltage, frequency and loading that may occur on systems other than the one in which a disturbance originated. Levels of performance range from no significant adverse effect outside a system area during a minor disturbance (loss of load or facility loading outside emergency limits) to a performance level that only seeks to prevent system cascading and the subsequent blackout of islanded areas. While controlled loss of generation, load, or system separation is permitted in extreme circumstances, their uncontrolled loss is not permitted (WSCC 1998).

North American Electric Reliability Council (NERC) Planning Standards provides policies, standards, principles and guides to assure the adequacy and security of the electric transmission system. With regard to power flow and stability simulations, these Planning Standards are similar to WSCC s Criteria for Transmission System Contingency Performance. The NERC planning standards provide for acceptable system performance under normal and contingency conditions, however the NERC planning standards apply not only to interconnected system operation but also to individual service areas (NERC 1998).

Cal-ISO Reliability Criteria also provide policies, standards, principles and guides to assure the adequacy and security of the electric transmission system. With regard to power flow and stability simulations, these Planning Standards are similar to WSCC s Criteria for Transmission System Contingency Performance and the NERC Planning Standards. The Cal-ISO Reliability Criteria incorporate the WSCC Criteria and NERC Planning Standards. However, the Cal-ISO Reliability Criteria also provide some

additional requirements that are not found in the WSCC Criteria or the NERC Planning Standards. The Cal-ISO Reliability Criteria apply to all existing and proposed facilities interconnecting to the Cal-ISO controlled grid.

Cal-ISO Scheduling Protocols and Dispatch Protocols require conformance with NERC, WSCC, and Local Area Reliability and Planning Criteria. These standards will be applied to the assessment of the system reliability implications of the Sunrise project. Also of major importance to the Sunrise project, and other privately funded projects which may sell through the California Power Exchange (Cal-PX) are the Cal-ISO Day/Hour Ahead Inter-zonal Congestion Management Scheduling Protocol (SP 10), the Transmission System Loss Management Scheduling Protocol (SP 4), and the Creation of the Real Time Merit Order Stack (SP 11). The Congestion Management Scheduling Protocol provides that the operation of power plants not violate system criteria when market participants request generation dispatch or the use of major interties. The Real Time Merit Order Stack is developed based on increasing energy bid prices so that the least cost bids are accepted early on and if congestion is anticipated the highest bids are not selected. The Transmission System Loss Management Scheduling Protocol uses the Cal-ISO power flow model to identify total transmission losses at each generating unit and scheduling point. Additional calculations are performed to determine if the participant will be paid more or less than, for instance, the generating units dispatched net power output (Cal-ISO 1998a, Cal-ISO 1998b).

Cal-ISO Participating Generator Agreement consists of detailed explanations of the requirements in the Cal-ISO Tariff pertaining to the paralleled generating unit.

VISUAL RESOURCES

FEDERAL AND STATE

Segments of the proposed transmission line rights-of-way are located on both federal and state lands. The U.S. Bureau of Land Management (BLM) manages the federal lands, and the California Department of Fish and Game (CDFG) manages the state. No roadway in the project vicinity is a designated or eligible State Scenic Highway. Therefore, no federal or state regulations pertaining to scenic resources are applicable to the project.

LOCAL

COUNTY OF KERN

GENERAL PLAN

Kern County has no specific policies on visual or aesthetic resources that apply to the SCPP. However, these issues are addressed in the Kern County General Plan, Open Space Element, and are implemented by the Kern County Planning and Development Services Department (Kern County, 1994). This element of the General Plan requires public notification and review of any projects that may adversely impact visual resources. The SCPP is generally consistent with the land use designation for the area, and therefore is considered consistent with associated visual resource planning purposes and General Plan requirements. The County does have landscaping requirements for approval of a building permit, which will be required for this project .

WASTE MANAGEMENT

FEDERAL

RESOURCE CONSERVATION AND RECOVERY ACT (42 U.S.C. SECTION 6921 ET SEQ.)

The Resource Conservation and Recovery Act (RCRA) establishes 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 to permitted treatment, storage, or disposal facilities, and

submission of periodic reports to the U.S. 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. Specific types of wastes are also listed.

STATE

CALIFORNIA HEALTH AND SAFETY CODE, SECTION 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 under the California Environmental Protection Agency, or 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, SECTION 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, SECTION 66262.10 ET SEQ. (GENERATOR STANDARDS)

These sections establish requirements for generators of hazardous waste. Waste generators must determine if their wastes are hazardous according to specified characteristics or lists of hazardous 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, generators must use registered hazardous waste transporters for any offsite shipments. Requirements are also established for record keeping, reporting, packaging, and labeling of hazardous wastes, use of containers and tanks for hazardous waste storage, and limiting the amount of time that hazardous waste can be stored onsite.

LOCAL

KERN COUNTY GENERAL PLAN PUBLIC FACILITIES ELEMENT

All generators and processors of hazardous waste are encouraged to develop long-term waste management programs. Large generators of hazardous waste should be encouraged to recycle, treat and detoxify their wastes on site. Many such processes could be implemented in existing industrial map designations, if zoned appropriately (Policy No. 17).

WORKER SAFETY AND FIRE PROTECTION

FEDERAL

Occupational Safety and Health Act of 1970 (29 United States Code sections 651 et seq.).

Occupational Safety and Health Administration Safety and Health regulations (29 Code of Federal Regulations⁄⁄ 1910.1 - 1910.1500)

29 U.S.C.⁄ 651 et seq. (Occupational Safety and Health Act of 1970)
Occupational Safety and Health Act of 1970 (29 United States Code section (USC) (⁄) 651 et seq.).

29 C.F.R. ⁄ 1910.120 (HAZWOPER Standard) Defines the regulations for Hazardous Waste Operations and Emergency Response. This section covers the clean-up operations, hazardous materials removal work, corrective actions, voluntary clean-up operations, monitoring, and emergency response required by federal, state, and local agencies of hazardous substances that are present at controlled and uncontrolled hazardous waste sites.

29 C.F.R.⁄⁄ 1910.1 - 1910.1500 (Occupational Safety and Health Administration Safety and Health regulations)

29 C.F.R.⁄⁄ 1952.170 - 1952.175 (Approval of California s plan for enforcement of its own Safety and Health requirements, in lieu of most of the federal requirements found in __ 1910.1 - 1910.1500)

STATE

California s plan for enforcement of its own Safety and Health requirements is in lieu of most of the federal requirements found in 29 CFR⁄⁄ 1952.170 - 1952.175.

Title 8, California Code of Regulations (CCR), section 450 et seq. (Applicable requirements of the Division of Industrial Safety, including Unfired Pressure Vessel Safety Orders, Construction Safety Orders, Electrical Safety Orders, and General Industry Safety Orders).

California Building Code, Title 24, CCR, ⁄ 501 et seq. The California Building Code is designed to provide minimum standards to safeguard human life, health, property and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, etc. of buildings and structures.

Title 8, CCR, ⁄ 5192 (HAZWOPER Standard). Defines the regulations for Hazardous Waste Operations and Emergency Response. This section covers the clean-up operations, hazardous removal work, corrective actions, voluntary clean-up operations, monitoring, and emergency response required by federal, state, local agencies of

hazardous substances that are present at controlled and uncontrolled hazardous waste sites.

LOCAL

1998 Edition of California Fire Code (CFC) and all applicable National Fire Protection Association (NFPA) standards. The fire code contains provisions necessary for fire prevention and information about fire safety, special occupancy uses, special processes, and explosive, flammable, combustible and hazardous materials.

Uniform Fire Code Standards. This is a companion publication to the CFC and contains standards of the American Society for Testing and Materials and of the National Fire Protection Association.

California Building Code. (Cal. Code Regs., Tit. 24, ⁄ 501 et seq.) The California Building Code is designed to provide minimum standards to safeguard human life, health, property and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, etc. of buildings and structures.

STATE OF CALIFORNIA

Energy Resources Conservation
And Development Commission

In the Matter of:	)	
	)	
Application for Certification	)	**Docket No. 98-AFC-4**
for the Sunrise Cogeneration	)	
and Power Project (SCPP)	)	

EXHIBIT LIST

Exhibit 1: Application for Certification (AFC) dated December 21, 1998. Sponsored by Applicant; portions received into evidence on October 12 and 14, 1999.

Exhibit 2: Transmission Supplement to the AFC, dated June 4, 1999. Sponsored by the Applicant; received into evidence on January 28, 2000.

Exhibit 3: Appendix A, Minor Revisions to Project Description, Sunrise Comments on the Preliminary Staff Assessment, dated September 2, 1999. Sponsored by Applicant; received into evidence on October 12, 1999.

Exhibit 4: Appendix B, Errata to Transmission Supplement 2, Sunrise Comments on Preliminary Staff Assessment, dated September 2, 1999. Sponsored by Applicant; received into evidence on January 28, 2000.

Exhibit 5: Responses to Energy Commission Staff Data Requests, Set 1, dated March 31, 1999; Set 1A, dated April 15, 1999; Set 1B, dated April 30, 1999; Set 1C, dated May 19, 1999; Set 2, dated June 15, 1999; Workshop Data Requests, dated June 14, 1999. Sponsored by Applicant; portions received into evidence on October 12 and 14, 1999.

Exhibit 6: Responses to CURE Data Requests. Set 1, dated April 8, 1999; Set 1A, dated May 5, 1999; Set 2, dated June 21, 1999, July 6, 1999, and September 17, 1999. Sponsored by Applicant; received into evidence on October 14, 1999.

Exhibit 7: Applicant s comments on Preliminary Staff Assessment, dated September 2, 1999. Sponsored by Applicant; portions received into evidence on October 12 and 14, 1999.

Exhibit 8: Application for Transportation and Utility Systems and Facilities on Federal Lands, dated June 23, 1999. Sponsored by Applicant; received into evidence on January 28, 2000.

Exhibit 9: California Endangered Species Act, Section 2081 (b) Permit Application, dated June 23, 1999. Sponsored by Applicant; received into record on January 28, 2000.

Exhibit 10: Appendix B, Application for Transportation and Utility Systems and Facilities on Federal Lands, Draft Biological Resources Mitigation Implementation Monitoring Plan (BRMIMP), dated June 23, 1999. Sponsored by Applicant; received into evidence on January 28, 2000.

Exhibit 11: Sunrise Cogeneration Facility Transportation Impact Analysis, Construction Impacts at State Route 119 and Midway Road, dated September 24, 1999. Sponsored by Applicant; received into evidence on January 28, 2000.

Exhibit 12: Appendix B, Application for Certification, SJVUAPCD Determination of Compliance/Authority to Construct Permit Application, dated December 21, 1998. Sponsored by Applicant; received into evidence on January 28, 2000.

Exhibit 13: Applicant s comments on SJVUAPCD Preliminary Determination of Compliance. Sponsored by Applicant; received into evidence on January 28, 2000.

Exhibit 14: Sunrise Application for PSD Permit to USEPA, Region 9, dated March 1, 1999. Sponsored by Applicant; received into evidence on January 28, 2000.

Exhibit 15: USEPA PSD Permit, Region 9. Sponsored by Applicant; received into evidence on January 28, 2000.

Exhibit 16: Letter from Regional Water Quality Control Board regarding SWPPP Permit. Sponsored by Applicant; received into evidence on January 28, 2000.

Exhibit 17: Streambed Alteration Notification. Sponsored by Applicant; received into evidence on January 28, 2000.

Exhibit 18: Notice of Decision for a Lot line Adjustment 29-99 to the Kern County Planning Department, dated August 10, 1999. Sponsored by Applicant; received into evidence on January 28, 2000.

Exhibit 19: Interim Design Facilities Study 1 (DFS-1) Status Report, PG&E, dated September 10, 1999. Sponsored by Applicant; received into evidence on January 28, 2000.

Exhibit 20: Interim Design Facilities Study 2 (DFS-2) Status Report, PG&E, dated September 17, 1999. Sponsored by Applicant; received into evidence on January 28, 2000.

Exhibit 21: Sunrise Cogeneration and Power Company, Geotechnical Report Revision 1, Black and Veatch Construction Inc., dated September 1999. Sponsored by Applicant; received into evidence on January 28, 2000.

Exhibit 22: Applicant s Testimony, Part I, filed on October 6, 1999. Sponsored by Applicant; received into evidence on October 14, 1999.

Exhibit 23: Final Staff Assessment, filed October 1, 1999. Sponsored by Staff; portions received into evidence on October 12 and 14, 1999.

Exhibit 24: Errata to Staff Testimony on Cultural Resources, dated October 11, 1999. Sponsored by Staff; received into evidence on October 12, 1999.

Exhibit 25: Errata to Staff Testimony on Facility Design, dated October 11, 1999. Sponsored by Staff; received into evidence on October 12, 1999.

Exhibit 26: Declarations of Al McCuen and Steve Baker, dated October 12, 1999. Sponsored by Staff; portions received into evidence on October 12, 1999.

Exhibit 27: General Electric Model 7241FA Gas Turbine Typical Start-up. Sponsored by Staff; received into evidence on October 12, 1999.

Exhibit 28: Supplement to Staff s Testimony, dated October 14, 1999, Condition for Indirect Impacts to Cultural Resources. Sponsored by Staff; received into evidence on October 14, 1999.

Exhibit 29: Errata to Noise Testimony by Kisabuli. Sponsored by Staff; received into evidence on October 12, 1999.

Exhibit 30: Resume of Rick Tyler. Sponsored by Staff; received into evidence on October 14, 1999.

Exhibit 31: Appendix B Table 8.12-2. Hazardous Materials used during operations. Sponsored by Staff; received into evidence on October 14, 1999.

Exhibit 32: Final Staff Assessment, Part Two. Sponsored by Staff; received into evidence on November 5, 1999.

Exhibit 33: Statement and Qualifications of Dale Edwards. Sponsored by Staff; received into evidence on November 5, 1999.

Exhibit 34: Errata of Joe Diamond. Sponsored by Staff; received into evidence on November 5, 1999.

Exhibit 35: Report of Conversation between Dale Edwards, of the CEC, and Mr. Steve Hassel, of Kern County Schools. Sponsored by Staff; received into evidence on November 5, 1999.

Exhibit 36: ISO Test. Sponsored by Staff; received into evidence on November 5, 1999.

Exhibit 37: ISO Conditions and Findings. Sponsored by Staff; received into evidence on November 5, 1999.

Exhibit 38: Cultural Resources —Stipulation on Cultural 18. Sponsored by Staff received into evidence on November 5, 1999.

Exhibit 39: Testimony of David Larsen of Navigant Consulting Inc., regarding Transmission Impacts of the Sunrise Project on Behalf of TANC. Sponsored by TANC; received into evidence on November 5, 1999.

Exhibit 40 Supplemental testimony of David Enoff regarding ammonia transportation. Sponsored by Applicant; received into evidence on December 2,1999.

Exhibit 41 Large Truck Traffic Safety Facts, 1995. Sponsored by Staff; received into evidence on December 2,1999.

Exhibit 42 Sunrise Cogeneration and Power Project, Phase 2, Environmental Site Assessment. Sponsored by Staff; received into evidence on December 2,1999.

Exhibit 43 Testimony of J. Phyllis Fox on behalf of C.U.R.E. on Traffic and Transportation Impacts and Worker Safety Impacts. Sponsored by CURE; received into evidence on December 2,1999.

Exhibit 44 Arthur D. Little Final Risk Assessment for Ammonia Transportation to the Chevron Gaviota Facility. Sponsored by CURE; received into evidence on December 2,1999.

Exhibit 45 Supplemental testimony of Worker Health and Safety. Declaration of James V. Bunker. Sponsored by Applicant; received into evidence on December 3,1999.

Exhibit 46 Phase 2 Environmental Site Assessment. Sponsored by the Applicant; received into evidence on December 3,1999.

Exhibit 47 Memorandum of Understanding with Department of Toxic Substances Control Sponsored by Applicant; received into evidence on December 3,1999.

Exhibit 48 Environmental Protection Agency, Region 9 Preliminary Remediation Goals (PRGs) 1999. Sponsored by Applicant; received into evidence on January 11, 2000.

Exhibit 49: Air Quality Testimony of Paula Fields. Sponsored by the Applicant; received into evidence on January 10, 2000.

Exhibit 50: Meteorology Testimony of Arnold Srackangast. Sponsored by the Applicant; received into evidence on January 10, 2000.

Exhibit 51: Testimony of David Stein on Air Quality-Combined Turbine PM_{10} Emission Rate and ERC s. Sponsored by the Applicant; received into evidence on January 10, 2000.

Exhibit 52: NO EXHIBIT; WITHDRAWN.

Exhibit 53: Letter from the San Joaquin Valley United Air Pollution Control District to Robert Therkelsen, dated December 2, 1999. Sponsored by the Applicant; received into evidence on January 10, 2000.

Exhibit 54: Air Quality Testimony of Joe Loyer and Mark Hester. Sponsored by the Staff; received into evidence on January 10, 2000.

Exhibit 55: Revisions to the Staff s Air Quality Testimony. Sponsored by Staff; received into evidence on January 10, 2000.

Exhibit 56: Air Quality Testimony of Dr. Phyllis Fox. Sponsored by Intervenor CURE; received into evidence on January 28, 2000.

Exhibit 57: CURE s Comments on the Preliminary Determination of Compliance. Docketed on August 31, 1999. Sponsored by CURE; received into evidence on January 28, 2000.

Exhibit 58: CURE s comments on the draft PSD permit. Docketed on January 10, 1999. Sponsored by CURE; received into evidence on January 28, 2000.

Exhibit 59: Final Determination of Compliance prepared by the SJVUAPCD, dated 11/4/99, with attached letters. Sponsored by the Applicant; received into evidence on January 10, 2000.

Exhibit 60: EPA letter to Mr. Seyed Sadredin, SJVUAPCD, regarding the Sunrise PM10 ERCs. Docketed on January 7, 2000. Received into evidence on January 10, 2000.

Exhibit 61: Packet of Notices of Violation. November 11, 1999 date of NOV inspection. NOV issued on December 21, 1999. Sponsored by Intervenor CURE; received into evidence on January 28, 2000.

Exhibit 62: Air Quality testimony of Gregory Salyer of the Modesto Irrigation District. Docketed on January 3, 2000. Sponsored by the Applicant; received into evidence on January 10, 2000.

Exhibit 63: Biological Resources Testimony of Rick York and Linda Spiegel (FSA Part 3). Sponsored by the Staff; received into evidence on January 11, 2000.

Exhibit 64: California Energy Commission Studies of the San Joaquin Kit Fox, dated, August 1996. Sponsored by the Staff; received into evidence on January 11, 2000.

Exhibit 65: Two Letters: Department of Conservation Notice to Kern County Operators ; Department of the Interior, USF&WS to Hal Bopp, DOGGR. Sponsored by the Applicant; received into evidence on January 11, 2000.

Exhibit 66: Declaration of Kristine Charlton, docketed January 3, 2000. Sponsored by the Applicant; received into evidence on January 11, 2000.

Exhibit 67: Letter to Dr. Kristin G. Charlton from the Journal of Wildlife Diseases. Docketed on January 11, 2000. Sponsored by the Applicant; received into evidence on January 11, 2000.

Exhibit 68: Application for Transmission and Facilities on Federal Lands. Docketed June 23, 1999. Sponsored by the Applicant; received into evidence on January 11, 2000.

Exhibit 69: Revised Draft Biological Resources Plan. Docketed November 30, 1999. Sponsored by the Applicant; received into evidence on January 11, 2000.

Exhibit 70: California Endangered Species Act Section 2081(b) Permit Application. Docketed on June 23, 1999. Sponsored by the Applicant; received into evidence on January 11, 2000.

Exhibit 71: Letter to Marc Pryor from W. E. Lowermilk, dated December 7, 1999, docketed on December 14, 1999. Sponsored by the Applicant; received into evidence on January 11, 2000.

Exhibit 72: Testimony of D. Michael Fry, CURE witness on Biology. Sponsored by Intervenor CURE; received into evidence on January 11, 2000.

Exhibit 73: Testimony of David Stein on Public Health. Sponsored by the Applicant; received into evidence on January 11, 2000.

Exhibit 74: Community Monitoring Program, Avila Beach, dated February 8, 1999. Sponsored by the Applicant; received into evidence on January 11, 2000.

Exhibit 75: Public Health Testimony of Rick Tyler and Obed Odoemelam. Sponsored by the Staff; received into evidence on January 11, 2000.

Exhibit 76: Supplemental Worker Safety and Fire Protection Testimony of Rick Tyler. Docketed on January 4, 2000. Sponsored by the Staff; received into evidence on January 11, 2000.

Exhibit 77: Public Health Testimony of Dr. Phyllis Fox. Sponsored by Intervenor CURE; received into evidence on January 11, 2000.

Exhibit 78: Supplemental Public Health Testimony of Dr. J. Phyllis Fox. Sponsored by Intervenor CURE; received into evidence on January 11, 2000.

Exhibit 79: Biological Resources Testimony and Revised Testimony of William J. Vanherweg. Sponsored by the Applicant; received into evidence on January 11, 2000.

Exhibit 80: Declaration of James Bunker on Worker Safety. Dated and docketed on January 4, 2000. Sponsored by the Applicant; received into evidence on January 28, 2000.

Exhibit 81: Recommended Revisions to **Safety-1,** FSA Proposed Conditions of Certification. Sponsored by the Applicant; received into evidence on January 28, 2000.

Exhibit 82: Supplemental Worker Safety Testimony of Dr. Phyllis Fox. Sponsored by Intervenor CURE; received into evidence on January 28, 2000.

Exhibit 83: Worker Safety Testimony of Kim Worl. Sponsored by the Applicant; received into evidence on January 28, 2000.

Exhibit 84: Letter from the SJVAPCD to Mr. Matt Haber, USEPA, regarding certificate of statewide compliance, dated January 12, 2000. Sponsored by the Applicant; received into evidence on January 28, 2000.

Exhibit 85: Letter from the USEPA to Mr. Seyed Sadredin, SJVAPCD, regarding certificate of statewide compliance, dated January 11, 2000. Sponsored by the Applicant; received into evidence on January 28, 2000.

Exhibit 86: Declaration of Gary Walker, dated January 11, 2000, for Visual Resources. Sponsored by the Staff; received into evidence on January 28, 2000.

Exhibit 87: Declaration of Amanda Stennick, dated January 7, 2000, for Land Use. Sponsored by the Staff; received into evidence on January 28, 2000.

Exhibit 88: Letter from Ray Hanley, La Paloma Generating Company, LLC, to Nancy Tronaas, CEC, dated November 10, 1999. Regarding submissions for AQ Conditions 2 and 41. Sponsored by the Applicant; received into evidence on January 28, 2000.

Exhibit 89: Testimony of Joe O Hagan (FSA Part 3). Sponsored by the Staff; received into evidence on January 13, 2000.

Exhibit 90: Water Test Results, docketed January 4, 2000. Sponsored by the Applicant; received into evidence on January 13, 2000.

Exhibit 91: Responses to CEC Data Requests Set 3, dated January 6, 2000. Sponsored by the Applicant; received into evidence on January 13, 2000.

Exhibit 92: Errata to Soils and Water Resources Testimony of Joe O Hagan, dated January 13, 2000. Sponsored by the Staff; received into evidence on January 13, 2000.

Exhibit 93: Water Resources Testimony of Joy Rogalla and Randall Marx. Sponsored by the Applicant; received into evidence on January 13, 2000.

Exhibit 94: Valley Waste Disposal Company Waste Discharge Requirements. Docketed 11/9/99. Sponsored by the Applicant; received into evidence on January 13, 2000.

Exhibit 95: Letter from Radian International to the California Regional Water Quality Control Board, Central Valley Region, dated May 26, 1999. Sponsored by Applicant; received into evidence on January 13, 2000.

Exhibit 96: Letter from the California Regional Water Quality Control Board to Radian International, dated June 2, 1999. Sponsored by Applicant; received into evidence on January 13, 2000.

Exhibit 97: Permit approval from the Division of Oil, Gas and Geologic Resources for Valley Waste Disposal Company. Docketed November 9, 1999. Sponsored by Applicant; received into evidence on January 13, 2000.

Exhibit 98: Letter dated June 26, 1999 from Robert J. Blanco, EPA to Michael Paque, Groundwater Protection Council in Oklahoma City, OK. Sponsored by Applicant; received into evidence on January 13, 2000.

Exhibit 99: Memo dated August 10, 1987 from M. G. Mefford, Department of Conservation, attaching EPA approval to inject air scrubber waste and water softener regeneration brine into class 2 wells. Sponsored by Applicant; received into evidence on January 13, 2000.

Exhibit 100: Letter dated January 29, 1997 from William Guerard, California Department of Oil, Gas and Geology, to Ron Pilorin of the California Toxic Substances, re RECRA exempt EMP waste management. Sponsored by Applicant; received into evidence on January 13, 2000.

Exhibit 101: Soil Resources Testimony of Thomas Cudzillo. Sponsored by Applicant; received into evidence on January 13, 2000.

Exhibit 102: Sunrise Cogeneration and Power Project, response to CURE questions. Dated January 21, 2000. Sponsored by Applicant. Received into evidence on January 28, 2000.

Exhibit 103: Testimony of Dr. Phyllis Fox on water quality impacts of the Sunrise Power Project. Dated January 3, 2000. Sponsored by Intervenor CURE; received into evidence on January 28, 2000.

Exhibit 104: Testimony of Dr. Bruce W. Page on water sampling results, dated January 26, 2000. Sponsored by Intervenor CURE; received into evidence on January 28, 2000.

Exhibit 105: Testimony of Dr. Phyllis Fox on water sampling results, dated January 26, 2000. Sponsored by Intervenor CURE; received into evidence on January 28, 2000.

Exhibit 106: Summary of the information provided in the data responses to Staff s data request. Table entitled November 15, 1999 Samples . Sponsored by Intervenor Cure; received into evidence on January 28, 2000.

STATE OF CALIFORNIA
State Energy Resources Conservation and Development Commission

In the Matter of:	)	**Docket No. 98-AFC-4**
	)	
Application for Certification for the Sunrise Cogeneration and Power Project (SUNRISE PROJECT)	)	

PROOF OF SERVICE

I declare that I deposited copies of the attached document in the United States mail in Sacramento, CA, with *first class postage* thereon fully prepaid and addressed to the following:

DOCKET UNIT

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I declare that under penalty of perjury that the foregoing is true and correct.

Dated: _____ _____

[signature]