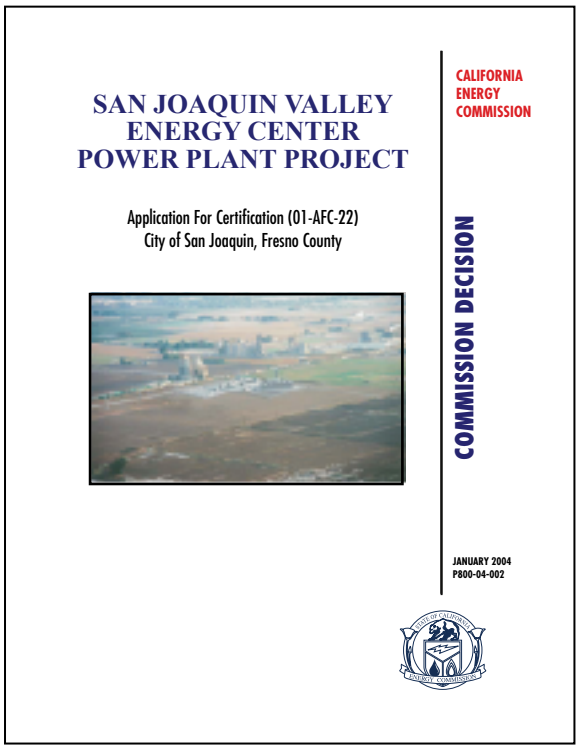
CALIFORNIA
ENERGY
COMMISSION

SAN JOAQUIN VALLEY ENERGY CENTER POWER PLANT PROJECT

Application For Certification (01-AFC-22)
City of San Joaquin, Fresno County

COMMISSION DECISION

JANUARY 2004
P800-04-002



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BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA

APPLICATION FOR CERTIFICATION OF THE SAN JOAQUIN VALLEY ENERGY CENTER POWER PLANT PROJECT IN FRESNO COUNTY (SJVEC)	**DOCKET NO. 01-AFC-22** APPLICATION COMPLETE (DATA ADEQUATE) JANUARY 9, 2002

COMMISSION ADOPTION ORDER

This Commission Order adopts the Commission Decision on the San Joaquin Valley Energy Center. It incorporates the Presiding Member's Proposed Decision (PMPD) in the above-captioned matter and the Committee Errata issued January 12, 2004. The Commission Decision is based upon the evidentiary record of these proceedings (Docket No. 01-AFC-22) and considers the comments received at the December 23, 2003, 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 Commission Decision, 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 San Joaquin Valley Energy Center, sponsored by San Joaquin Valley Energy Center, LLC, will provide local economic benefits and electricity reliability to the Riverside area.

2. The Conditions of Certification contained in the accompanying text, if implemented by the project owner, 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 control adequately 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 which would reduce or eliminate any significant environmental impacts of the mitigated project.

6. The evidence of record establishes that an environmental justice screening analysis was conducted and that the project, as mitigated, will not have a disproportionate impact on low-income or minority populations.

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

8. The Decision contains a discussion of the public benefits of the project as required by Public Resources Code section 25523(h).

9. The Decision 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.

10. 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 San Joaquin Valley Energy Center 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 the project owner 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. This Decision is adopted, issued, effective, and final on January 14, 2004.

4. Reconsideration of this Decision is governed by Public Resources Code, section 25530.

5. Judicial review of this Decision is governed by Public Resources Code, section 25531.

6. 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.

7. 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: January 16, 2004, at Sacramento, California.

WILLIAM J. KEESE Chairman	ARTHUR H. ROSENFELD Commissioner
JAMES D. BOYD Commissioner	JOHN L. GEESMAN Commissioner
Vacant	

INTRODUCTION

A. SUMMARY

This document is the California Energy Commission's (CEC's) Presiding Member's Proposed Decision (PMPD).[1] The CEC has exclusive jurisdiction in California over the licensing of power plants that are 50 megawatts (MW) or more. The CEC appointed a Committee of two Commissioners to review the proposed power plant project. This PMPD contains the Committee's determinations regarding the Application for Certification (AFC) for the San Joaquin Valley Energy Center, LLC (Applicant), a nominal 1,060-megawatt (MW)[2] natural gas-fired power plant in the City of San Joaquin (San Joaquin), which is located in Fresno County, California.[3] (12/23/03 RT 6:17-24.)

The PMPD includes the findings and conclusions required by law, and it is based exclusively on the evidentiary record established at the hearings on the AFC. This document contains the Committee's reasons supporting its PMPD and references to portions of the record, which support the Committee's findings and conclusions.[4]

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[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, §1753. The Final Decision is described in section 1755.

[2] See our section *infra* on Projection Description for a fuller explanation of the proposed project's generating capacity as described by Staff.

[3] On October 31, 2001, Calpine filed an AFC with the CEC for a power plant called the Central Valley Energy Center. Because of potential confusion with a project owned by Enron Corp. with a similar name, Calpine changed the name of the facility and the Applicant to the San Joaquin Valley Energy Center (SJVEC). (Exs. 1.1; 2a, pp. 1-2; 3.1.)

[4] 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, page and line number(s) of the reporter's transcript e.g., (Ex. 2, p. 1-1; 2/18 RT 123:8-124:3). Our Exhibit List, which is appended to this PMPD, includes Staff's Assessment and Staff's Addendum together as Exhibit 2; herein, we at times refer to the two documents together as the FSA. However, for purposes of identification, we will cite the Staff Assessment as "Ex. 2a" and the Addendum as Ex. "2b." The Committee conducted evidentiary hearings during four days of the week of February 17, 2003, in

SJVEC's siting is proposed for a portion of Applicant's 85-acre controlled site of agricultural land in an industrial area on the southeastern edge of San Joaquin in Fresno County. San Joaquin is approximately a thirty-minute drive from the City of Fresno (Fresno) to the east, and Interstate 5 to the west. The plant site would occupy approximately 25 acres near the southeast corner of the triangular parcel, with the remainder available for lease as agricultural land. (See Figure 1 below for an overview of the general project vicinity.)

As proposed, the site is located adjacent and to the west of the intersection of W. Colorado and Springfield Avenues. A new road built off Colusa Avenue on the west side of the parcel will provide for site access.

Major landmarks near the project include the Mendota Wildlife Management Area, approximately 10 miles to the northwest, and the Fresno-Clovis Wastewater Treatment Facility (FCWWTF), approximately 20 miles to the northeast. Zoning for the site is manufacturing, and thermal power plants are a compatible land use.[5]

SJVEC's proposed generation will be comprised of the following components:

- three natural gas fired combustion turbines (CTG's) equipped with dry-low oxides of nitrogen (NOx) combustors and steam injection power augmentation capability;
- three heat recovery steam generators with duct burners;
- one condensing steam turbine generator (STG);
- one deaerating surface condenser;
- one 16-cell mechanical-draft cooling tower; and
- associated support equipment providing a total net generating capacity of 1,060 MW.

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the cities of Sacramento and San Joaquin. Because all evidentiary hearings were conducted in 2003, we have omitted reference to the year in our citation to the reporter's transcript.

[5] See our section on Land Use, *infra.*

Introduction Figure 1:

SJVEC'S LOCATION

Source: (Ex. 1, Vol. 1, Figure 1.1-1.)

The proposed project is within the air quality jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD or District). On September 26, 2002, SJVAPCD issued its Final Determination of Compliance (FDOC), which found that the SJVEC project would comply with SJVAPCD's applicable rules and regulations, subject to the District's proposed Conditions of Certification. Staff has adopted those conditions uniformly and they are contained in our section on Air Quality. (Ex. 4A.37, p. 84.)

However, Staff's Addendum, filed on December 24, 2002, recommended against project approval. Staff concluded that the project's operational emissions of nitrogen oxides (NO_X), volatile organic compounds (VOCs), sulfur dioxide (SO_2) and particulate matter less than 10 microns in diameter (PM_{10}) could be significant if left unmitigated. Specifically in the cover letter to the Addendum, Staff described "major problems" with Applicant's proposed mitigation of these operational air quality impacts with pre-1990 Emission Reduction Credits (ERCs) that the US Environmental Protection Agency (USEPA) had found to be invalid. (Cover letter to Addendum [Ex. 2b] dated December 24, 2002.) Relying on the USEPA's original assessment that the pre-1990 ERC's were not valid, Staff concluded against recommending approval for the project until and unless Applicant provided additional ERCs as mitigation for operational impacts. Staff's specific conclusions are set forth below.

> Staff cannot currently recommend this project for certification because the project's emissions mitigation does not comply with federal or state law. The rationale for this decision, as discussed previously, is as follows:
>
> 1. The Applicant has not shown that they own, or have the rights to purchase, adequate emission reduction credits as required by federal CAA [Clean Air Act] law to offset the project's emission impacts;
> 2. The Applicant is proposing the use of major source shutdown emission reductions in their offset package, which is not allowed under District Rule 2201 Section 4.13.1;

3. The offset package would not conform with California Code of Regulations, Section 1742 (b) or 1744 (b);
4. The Applicant is not proposing to offset its SO_2 emissions, which staff considers necessary to mitigate secondary particulate impacts;
5. The Applicant lacks adequate quantities of offsets for each of the following criteria pollutants: 386.2 tons of NO_x, 86.0 tons of VOC and 87.4 of PM_{10} (all based on a required 1.5:1 offset ratio), and 21.8 tons of SO_2 (based on a 1:1 mitigation ratio). (Ex. 2b, p. 4.1-65.)

The dispute between Applicant/SJVAPCD on one hand and USEPA/Staff on the other over pre-1990 ERCs has dissipated because USEPA's position changed shortly before our evidentiary hearing on air quality when the agency published its pending approval of SJVAPCD's New Source Review rule in the Federal Register. USEPA's pending rule action approving SJVAPCD's New Source Review rules would validate the District's action in its FDOC approving Applicant's proposed pre-1990 ERCs for the SJVEC.

Even so, as currently situated, Staff is recommending disapproval of the project because Applicant has already dedicated ERC Certificate No. S-1340-2 to the *Pastoria Energy Facility* project (No. 99-AFC-7) (*Pastoria*). The SJVAPCD's FDOC notes that ERC Certificate # S-1340-2 is still registered to *Pastoria*. There is no dispute but that such a "double accounting" is improper in that an ERC may only be committed to a single project. Without Certificate # S-1340-2, SJVEC lacks sufficient offsets to meet its offset obligations under the District's rules.

Applicant has attempted to cure the problem by unilaterally reallocating ERC Certificate # S-1340-2 to the SJVEC. Such a reallocation would satisfy District rules prior to February 13, 2003, but would conflict with USEPA rules. USEPA has oversight authority over the District, which has pledged to follow the USEPA reallocation practice in the pending rulemaking action. Under USEPA practice, SJVEC is required to:

- identify the source of the emissions reduction to be used to meet the offset requirements,
- provide an opportunity for review of the proposed ERCs, and
- surrender the identical ERC to the District unless a new Authority To Construct (ATC/PDOC)[6] is proposed identifying the new emission reduction credits to be relied upon.

Staff's recommended **Condition AQ-C7**, which is opposed by Applicant, would track the ERCs that Applicant has proposed to ensure that the identical ERCs are surrendered at the appropriate time under air district rules. Here, under rules in place prior to February 13, 2003, the SJVAPCD only requires that ERCs be identified prior to issuing an ATC, and that a sufficient quantity be surrendered prior to operations. To comply with USEPA requirements set forth above, the SJVAPCD after February 13, 2003, will require that the identified ERCs be listed in a FDOC condition of certification, which the Energy Commission is required to adopt in its Decision. To surrender different ERCs than those contained in the FDOC would require a new notice procedure and concomitant reissuance of the ATC.

The Energy Commission must comply with the Warren-Alquist Act, under which:

> The commission shall require as a condition of certification that the applicant obtain any required emission offsets within the time required by the applicable district rules, consistent with any applicable federal and state laws and regulations, and prior to the commencement of the operation of the proposed facility. (Pub. Res. Code § 25523 (d) (2).)

Allowing the SJVEC authority unilaterally to divest *Pastoria* of ERC Certificate # S-1340-2 would be inconsistent with state law under the foregoing provision, which requires consistency with **BOTH** applicable federal and state laws and regulations. Accordingly, our Decision will require Applicant to follow the USEPA (and the District's post-February 13, 2003) practice to cure the identified defect with ERC Certificate # S-1340-2. Applicant will be required either:

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[6] Under SJVAPCD's rules, the Authority to Construct (ATC) is the PDOC. The FDOC incorporates comments on the PDOC and the FDOC represents the final District action on the ATC.

- to renotice the *Pastoria* ERC package under USEPA and District rules or practices in place subsequent to February 13, 2003; or
- to renotice the SJVEC ERC package under USEPA and District rules or practices in place subsequent to February 13, 2003.

SJVEC would include its own new 230-kilovolt (kV) switchyard. The SJVEC facility will interconnect to PG&E's transmission system by looping both the Panoche–McCall and Panoche–Kearney transmission lines into the proposed project's switchyard. SJVEC will accomplish this by intercepting both of PG&E's 230-kV transmission lines a quarter-mile south of the site and installing two double-circuit pole lines into the SJVEC's switchyard. Staff identified in its assessment of the project transmission reconductoring as necessary to mitigate certain line overload impacts in PG&E's local transmission network. The City of San Joaquin, where the interconnection will occur, is part of PG&E's Greater Fresno Transmission Area. Staff concluded that the reconductoring would:

- provide considerably greater flexibility in routing power in the Greater Fresno Area transmission network, even should the San Joaquin Valley Energy Center not be built;
- ensure that the SJVEC could generate at its rated net maximum generation output of 1,097-MW; and
- increase the capacity and reliability of power deliveries to and from the Greater Fresno Area. (Exs. 3G, p. 84; 3G.4; 2a, p. 5.5-4; 2b, p. 4-28.)

Natural gas for the facility will be delivered via approximately 20 miles of new 24-inch pipeline that will connect to PG&E's existing gas transmission lines (2 and 401) located 20 miles west of the project site. Both interconnection points are located adjacent to Manning Avenue about four miles east of I-5.

The FCWWTF, which is located approximately four miles southwest of the City of Fresno, will supply to the SJVEC approximately 7,000-acre feet per year (afy) of recycled water for cooling tower and process makeup via an approximately 21-mile, 24-27-inch pipeline. Wastewater would then be directed to a brine crystallizer/dryer system, where the majority of the water would be evaporated, leaving a relatively dry salt cake suitable for landfill disposal. San Joaquin's

municipal system will supply domestic water for drinking, sinks, showers, toilets, and eye wash/safety showers via an approximately one mile long pipeline. San Joaquin's sewer system will accept return wastewater for disposal via an approximately 2.5-mile long sanitary sewer line.

In our section on Noise, we concluded that Applicant's noise impact analysis used the scientifically supported noise metrics of Ldn and Leq to describe the acoustic energy of the existing ambient environment and for comparison with the future acoustic energy predicted for the ambient plus SJVEC using the same noise descriptor.

The SJVEC project is a proposed merchant power plant estimated to have a capital cost of between $400 and $600 million and an operating life of 30-years or longer. Over a two-year construction period, the project would provide for a peak of approximately 600 construction jobs, and an average of 300 construction jobs. SJVEC will employ approximately 30 skilled positions on the payroll throughout the expected 30-50-year life of the proposed project. SJVEC is proposed as a merchant power facility (all project economic risks borne by the project's owners) that will sell electricity under contracts or in the spot market.

Mr. Keith Freitas, a local resident of the San Joaquin area, participated in the CEC's evidentiary hearings on the SJVEC proposed project as the lone active Intervenor. At our hearings, Mr. Freitas offered a qualified endorsement of the SJVEC facility as a mechanism to provide energy independence for California. Otherwise, Mr. Freitas identified issues of concern, particularly in the areas of Air Quality/Public Health, and Soils and Water Resources, actively participated in the cross-examination of Applicant and Staff witnesses to address those issues, and he offered documentary evidence to support his position on certain issues. He did not call independent expert or lay witnesses on behalf of those issues. (*Cf.* 2/18 RT 62:20-68:23 & 2/21 RT 6:15-7:25; Ex. 5.)

California Unions for Reliable Energy (CURE) was granted status as Intervenor but did not participate in the evidentiary proceedings.

B. PUBLIC COMMENT

Public comment offered during evidentiary hearings on the proposed project was overwhelmingly in favor of the SJVEC. In particular, the Committee was impressed with the uniformly positive response the SJVEC project has generated in the San Joaquin/Fresno area. At Committee hearings and conferences in the local area, local public officials have invariably appeared and offered favorable comments on the desirability of having the SJVEC facility sited in San Joaquin as Calpine has proposed.

Cruz W. Ramos, San Joaquin's City Manager appeared at our evidentiary hearing on behalf of the San Joaquin City Council and commented on San Joaquin's support for the SJVEC. Ms. Ramos voiced support for Calpine for its community involvement and for the benefits that the SJVEC would bring to San Joaquin, the surrounding communities and the entire San Joaquin Valley. In addition, Ms. Ramos read into the record a portion of Council Resolution Number 03-2, which was adopted unanimously at a regularly scheduled meeting on February 12, 2003, in support of the proposed project. The resolution reads, in part, as follows:

> **WHEREAS**, the City of San Joaquin has carefully, fully and independently evaluated the proposed Project and its conformance with the laws, ordinances, and standards of the City, including the City of San Joaquin General Plan;
>
> **NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF SAN JOAQUIN DOES HEREBY FIND, DETERMINE AND RESOLVE AS FOLLOWS**:

1. The foregoing recitals are true and correct:

2. The proposed project will comply with all applicable laws, ordinances, and standards of the City of San Joaquin over which the City has jurisdiction or

would have jurisdiction but for the Commission's exclusive authority to certify sites and related energy facilities.

3. The proposed Project will fully comply with the Noise Element of the City of San Joaquin General Plan.

4. Predicted noise levels as depicted in the Application for Certification will not violate any City ordinance or standard, nor will the predicted noise levels be detrimental to the health, safety or general welfare of the City.

5. The proposed project will be located in an appropriately zoned district, and will be compatible with existing and planned land uses in the project vicinity. (2/19 RT 2:1-3:22.)

Feleena Sutton appeared on behalf of Assemblywoman Sarah Reyes who represents the Thirty-First Assembly District, which is located in the San Joaquin Valley inclusive of San Joaquin. As the prior chair of the Assembly's Economic Development Committee, and current Chair of the Utilities and Commerce Committee, SJVEC has Assemblywoman Reyes' solid support because of the project's potential for economic revitalization of the San Joaquin Area. (2/19 RT 4:5-:23.)

Ron Manfredi, City Manager of the City of Kerman and a board member for the I-5 Business Development Corridor, a Fresno County Westside economic development corporation, appeared and commented favorably for the SJVEC. Mr. Manfredi noted his concerns that because the Central San Joaquin Valley is the fastest growing region in California, adequate provisions must be made for energy growth in the area. According to Mr. Manfredi, SJVEC would provide for that energy and growth concern, and would be viewed "as a boon to our economic development." In addition, Mr. Manfredi commented that he was hopeful that the USEPA and the SJVAPCD would work out their differences during the course of the CEC proceedings and that he had solicited political assistance from a local Congressman to that end. (2/19 RT 5:4-6:12.)

Midge Godwin and Abbie Hufford are local senior citizens residing in San Joaquin who expressed support for the proposed project and the benefits that it would bring to the local area's infrastructure (roads) and the state's energy supply. (2/19 RT 8:9-9:2.)

Caroline Farrell, an attorney with the California Rural Legal Assistance Foundation (CRLAF) in Delano appeared and offered comment on the proposed project. Ms. Farrell expressed concern about the validity of the ERCs that Applicant was proposing to use to mitigate air impacts in the San Joaquin Valley. CRLAF requested and the Committee granted it the opportunity to review transcripts of the air quality proceedings and to file post-hearing briefs on the subject of air quality. (2/19 RT 6:18-8:6.)

On December 23, 2003, various members of the public and governmental officials participated at the Committee Conference on this matter. They included Mr. James A. Benelli, a local resident, who provided comments opposing the proposed facility on the basis that it would increase air pollution and further degrade life in the San Joaquin Valley, particularly for asthma sufferers. (12/23/03 RT 52:21-56:18.)

Likewise, Mr. Robert Sarvey, a local resident participated by telephone to voice his opposition to Applicant's use of pre-1990 ERCs to mitigate SJVEC's operational air impacts, and the permitted level of allowable ammonia emissions. (12/23/03 RT 56:20-60:10.)

Californians for Renewable Energy, Inc. (CARE) provided joint written comments, docketed on December 23, 2003, on its behalf and on behalf of CRLAF in opposition to the proposed facility and its use of pre-1990 ERCs. These joint comments addressed, in addition, other areas of the PMPD's analysis such as Noise, Worker Safety and Fire Protection, and Socioeconomics (Environmental

Justice) that are not favorable to our extension of a license to the proposed facility.

Conversely, Ms. Cruz Ramos, San Joaquin's City Manager, appeared at the conference and offered her personal comments in favor of the proposed SJVEC. In addition, Ms. Ramos read a letter from the City's Mayor, Rosemary Ramirez, in support of the project as a means to provide an economic revitalization for the City of San Joaquin and the surrounding Fresno County region. (12/23/03 RT 60:12-62:16.)

We have carefully reviewed all the comments and we thank those participants for their involvement in our process. However, the evidence of record convinces us that the proposed facility should be licensed as conditioned in this Decision.

C. SITE CERTIFICATION PROCESS

The SJVEC and its related and ancillary facilities fall within the CEC's licensing jurisdiction. (Pub. Res. Code, §§ 25500 et seq.). During its licensing proceedings, the CEC acts as lead state agency under CEQA. (Pub. Res. Code, §§ 25519 (c), 21000 et seq.) The CEC's process and associated documents are functionally equivalent to the preparation of the traditional Environmental Impact Report. (Pub. Res. Code, § 21080.5.)

The CEC's process is designed to allow the review of a project to be completed within a limited period; a license issued by the CEC is in lieu of other state and local permits. The CEC'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 CEC'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). CEC staff reviews the data submitted as part of this AFC, and recommends to the CEC whether or not it contains adequate information to permit review to commence. Once the CEC determines that an AFC contains sufficient analytic information, it appoints a Committee of two Commissioners to conduct the licensing process. The CEC 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 CEC concerning a project's ultimate acceptability. The Committee and ultimately the CEC serve as fact-finder and decision-maker.

The CEC has a Public Advisor. The role of the CEC's Public Advisor is to assist members of the public and Intervenors with their understanding of and participation in the CEC's siting process.

All parties, including the applicant, CEC 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 CEC 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 Preliminary Staff Assessment (PSA).

Following the PSA and any further workshops conducted by CEC staff, 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 obtained from this event forms the basis for a Hearing Order organizing and scheduling formal evidentiary hearings. These hearings are conducted after Staff has finalized its analytical technical evaluation of the proposed project in a document that is called the Final Staff Assessment (FSA).

At the evidentiary hearings following the FSA's release, all participants that 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 the proposed project at these hearings. Evidence and public comment adduced during these hearings produces the Committee's evidentiary record, which provides the basis for the decision-makers' analysis and Decision.

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

D. SJVEC'S PROCEDURAL HISTORY

The Public Resources Code and CEC's regulations mandate a public process and specify the occurrence of certain necessary events. (Pub. Res. Code, §§ 25500 et seq.; Cal. Code of Regs., tit. 20, §§ 1701, et seq.) The essential procedural elements occurring during the present case are summarized below.

October 31, 2001, Applicant filed its AFC with the CEC. Shortly thereafter, Staff sent a "request for agency participation" to those governmental agencies likely to have an interest in the project. On January 9, 2002, the full CEC determined that 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 January 23, 2002. 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 SJVEC's project; it was also published in local and general circulation newspapers.

On February 7, 2002, the Committee conducted the Informational Hearing in San Joaquin. There, the Committee, Applicant, Staff, and other participants discussed the proposed project, described the CEC's review process, and identified opportunities for public participation. In addition, Applicant hosted a visit to the proposed power plant site.[7] On February 21, 2002, the Committee issued its required Scheduling Order.

Staff filed its Staff Assessment on July 16, 2002, and thereafter conducted various workshops to receive comments thereon. On September 19, 2002,

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[7] To accommodate Commissioner Geesman's appointment to the Committee after the initial site visit, Applicant hosted a second site visit before the Committee Conference held on January 23, 2003.

Applicant submitted a petition for removal of the SJVEC AFC from our expedited six-month process. (Cal. Code of Regs., tit. 20, § 2028.) Acting thereon, the Committee granted Applicant's request to have the AFC processed under our 12-month process; Staff was ordered to file a FSA. (Pub. Res. Code, § 25540.6.) On December 24, 2002, Staff filed an Addendum to the Staff Assessment. The Committee finds that the Staff Assessment and Addendum together is the equivalent of a FSA for purposes of the CEC's review. (Exs. 2a & 2b.)

On January 29, 2003, the Committee conducted the Prehearing Conference in these proceedings in San Joaquin, California, at which time the Committee addressed issues related to the conduct of evidentiary hearings and of special concern to the parties. On February 6, 2003, the Committee scheduled evidentiary hearings by publishing a Notice of Evidentiary Hearings. Finally, on February 18, 19, 20, and 21, 2003, the Committee conducted evidentiary hearings in the cities of San Joaquin and Sacramento. Thereafter, on December 4, 2003, the Committee after reviewing and compiling the evidentiary record published this PMPD. The delay between completion of evidentiary hearings and publication of this PMPD was occasioned because of the Hearing Officer's simultaneous involvement in this matter and publication of the Commission Decision in the East Altamont Energy Center matter.

I. PROJECT PURPOSE AND DESCRIPTION

Applicant) proposes to construct and operate a natural-gas-fired combined-cycle generating facility with a 230-kilovolt (kV) switchyard and approximately 0.25 miles of new 230-kW transmission lines. Although the AFC described the SJVEC as a 1,060 MW (nominal) combined cycle power plant, Staff states that the project is actually an 820 MW combined cycle power plant, with an additional 267 MW of peaking capacity provided by duct burners and a steam turbine generator. Upon construction, the plant would occupy up to 25 acres near the center of the right-triangle-shaped, 85-acre parcel, with the remainder available for lease as agricultural land. (*Cf.* Exs. 1, p. 1-1 & 2a, p. 3-1; *see* Ex. 2a, p. 1-2; Figure 1, *supra*.)

<u>The Proposed Project</u>

The power plant footprint will consist of up to 25 acres and will accommodate:

- power generation facilities,
- a 230-kV switchyard;
- a maintenance and administration building,
- emission control equipment,
- miscellaneous storage tanks for ammonia and associated with the water treatment system,
- various containment basins for ammonia and storm water, and
- parking areas. (Exs. 2a, pp. 3-1/2; 3.)

<u>Power Plant</u>

The proposed SJVEC project will include:

- three "F-class" Siemens-Westinghouse combustion turbine generators (CTGs) equipped with dry-low oxides of nitrogen (NO_X) combustors;
- steam injection capability for power augmentation;

- three heat recovery steam generators (HRSGs) with duct burners;
- a single condensing steam turbine-generator (STG);
- one nominal 125,000-pound-per-hour auxiliary boiler for auxiliary steam augmentation as needed;
- a 16-cell mechanical draft evaporative cooling tower to provide cooling water for the steam turbine condenser;
- a deaerating surface condenser;
- a 1,040 kW natural gas-fired emergency generator;
- a 370-horsepower diesel fire pump;
- approximately 1,500 feet of new 230 kV-transmission line and
- support equipment. (Exs. 1, p. 1-2; 2a, p. 3.2; 3.)

Each HRSG unit (150 feet long, 60 feet wide, and approximately 106 feet tall) will be equipped with an exhaust stack (145-foot tall and 20 feet in diameter) and duct burners for additional steam production when increased electric power generation is necessary. (Exs. 1, p. 1-4; 3.)

To control emissions of air pollutants, SJVEC will have gas turbines equipped with dry, low NO_X combustors. The units will use the best available control technology (BACT) including selective catalytic reduction (SCR) for control of NO_x. The SCR system consists of a reduction catalyst and an anhydrous ammonia injection system. In addition, the SJVEC is required by the SJVAPCD to provide emission reduction credits for NO_X, particulate matter 10 microns or less in size (PM_{10}), carbon monoxide (CO), sulfur dioxide (SO_2) and precursor organic compounds (POC or VOC). (Ex. 2a, pp. 4.1-1/3; 3, pp. 52-53.)

<u>Natural Gas Facilities and Transmission Line</u>

Natural gas for the facility will be delivered via approximately 20 miles of new 24-inch pipeline that will connect to PG&E's existing gas transmission lines (2 and 401) located 20 miles west of the project site. The pipeline would be constructed by open trench along existing major roads through the edge of agricultural fields

of cotton, melons, and tomatoes. Horizontal directional drilling to minimize potential adverse environmental impacts would be utilized to cross major waterways and flood channels. (Exs. 1, p. 1-2; 3, p.47; *see* Figure 1 *supra*.)

SJVEC would include its own new 230-kilovolt (kV) switchyard. The SJVEC facility will interconnect to PG&E's transmission system by looping both the Panoche–McCall and Panoche–Kearney transmission lines into the proposed project's switchyard. SJVEC will accomplish this by intercepting both of PG&E's 230-kV transmission lines a quarter-mile south of the site and installing two double-circuit pole lines into the SJVEC's switchyard. (Exs. 1, p. 2-5; 2, p. 3.2; 3, p. 47.)

Water Supply and Waste Water Treatment

The Fresno-Clovis Wastewater Treatment Facility (FCWWTF) will supply approximately 7,000-acre feet per year (afy) of recycled water for cooling tower and process makeup via an approximately 21-mile, 24-27-inch pipeline to the SJVEC. Cooling water will be cycled in the cooling tower three to eight times (depending on water quality). The blowdown will be concentrated and the water reclaimed onsite using a zero-liquid discharge (ZLD) system.[8] (Exs. 1, pp. 2-8/12; 3, pp. 47-48.)

Water for the proposed project would be produced from six new, dedicated reclamation wells located at the FCWWTP effluent disposal ponds. FCWWTP discharges approximately 76,000 afy to 1,600 acres of disposal ponds. Because of years of application, the water elevation under these ponds has risen substantially above the groundwater aquifer, forming a mound of impaired water.

[8] During normal operation, ZLD treatment system distillate will be used as process makeup to the demineralized water system. During peak operation, ZLD treatment system distillate and additional makeup water would be needed. Because of water quality requirements, reclaimed water will always be the source for supplemental process makeup water. (Ex. 3, p. 51.)

New "Flowpath" wells installed near the downstream side of the water mound would extract this reclaimed water for distribution to SJVEC.[9] (Ex. 3, pp. 51-52.)

An approximately one mile long pipeline from San Joaquin's municipal system will supply domestic water for drinking, sinks, showers, toilets, and eye wash/safety showers. An approximately 2.5-mile long sanitary sewer line will return wastewater for disposal to San Joaquin's sewer system. (Exs. 1, p. 1-1; 3, p.47.)

Operation and Closure

Applicant proposes to operate the SJVEC as a merchant power facility, selling its energy under contracts or in the spot market. The SJVEC would be expected to have an annual availability in the general range of 92 to 98 percent. It will be possible for plant availability to exceed 98 percent for a given 12-month period. The exact operational profile of the plant, however, would vary according to demand in the deregulated California energy market. (Exs. 1, p. 1-1; 2a, p. 3-3; 3, p. 53.)

The planned life of the SJVEC facility is 30 years or longer. Whenever the facility is closed, either temporally or permanently, the closure procedures will follow the described plan provided in the SJVEC AFC, LORS, and in the FSA's discussions on facility closure and Conditions of Certification. (Exs. 1, pp. 1-1, 4-1; 2a, p. 3-3; 3, p. 53.)

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[9] To meet California Code of Regulations (CCR) Title 22 requirements, the reclaimed or recycled water would be chlorinated (sodium hypochlorite) before being piped approximately 21 miles to SJVEC. At the SJVEC site, it would be stored in two 1.5 million-gallon storage tanks. The Department of Health Services (DHS) and the Central Valley Regional Water Quality Control Board (CVRWQCB) are the permitting agencies that require specific monitoring and water quality conditions for the use of this recycled water. SJVAPCD's use of this recycled water source will (1) assist Fresno in its goals to re-use 100 percent of the water sent to the disposal ponds, and reduce the elevation of the impaired water mound under the disposal ponds, and (2) make higher quality water available for other uses such as domestic or in-stream beneficial uses. (Ex. 3, p. 51.)

FINDINGS AND CONCLUSIONS

Based upon the evidence of record, the Committee finds as follows:

1. The proposed project involves the construction and operation of a nominal 1,060-megawatt (MW), natural gas-fired, combined cycle, electrical generating facility on the southeastern edge of the City of San Joaquin in Fresno County, California.

2. The proposed project will also include a new, approximately 20-mile-long natural gas pipeline, an approximately 0.25-mile-long, 230kV transmission line, a one-mile-long domestic water pipeline, a 2.5-mile-long sanitary sewer line and a 21-mile-long recycled (reclaimed) water pipeline.

3. The project is adequately described in the AFC and FSA.

We therefore conclude that the SJVEC project is described at a level of detail sufficient to allow review in compliance with the provisions of both the Warren-Alquist Act and the California Environmental Quality Act (CEQA).

II. PROJECT ALTERNATIVES

The Commission is required during the AFC process to examine the feasibility of site and facility alternatives that may avoid or lessen the potential significant environmental impacts of a proposed project. The intent is to make good decisions based on understanding environmental consequences, and to take actions to protect, restore, and enhance the environment. (Pub. Res. Code, § 21080.5(b) (3)(A); Cal. Code of Regs., tit. 20, § 1765.)

We note that Applicant provided an Alternatives analysis as part of the AFC. According to the AFC and Staff, Applicant chose the proposed site for the following reasons:

- The site is close to a transmission interconnection with access to Fresno Local Region electrical markets;
- Sufficient land is available for the 25-acre site plus a 20-acre construction lay down area;
- The site is a feasible distance to the Fresno-Clovis Waste Water Treatment Facility;
- The site is a feasible distance to a PG&E natural gas pipeline;
- The site is away from sensitive land uses; and;
- A power plant at this site would be compatible with the existing land use. (Exs. 1, pp. 9-1/7; 2a, p. 6-2)[10]

Staff also conducted an Alternatives analysis as part of its Staff Analysis of the SJVEC project. Therefore, this Decision complies with the "CEQA guidelines", 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

[10]Although Applicant's AFC was not required to contain a discussion of site alternatives, the Commission's CEQA duty remained unchanged. (*See* Pub. Resources Code, § 25540.6 (b).)

> project…", as well as an evaluation of the "no project" alternative. (14 CCR, § 15126 (d).)

The range of alternatives that 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. (14 CCR, § 15126 (d) (5); Ex. 2a, p. 6-1.)

SUMMARY OF THE EVIDENCE

The evidence of record addresses alternatives to the SJVEC project's major components. This includes generation technology, site selection and linear facility routing. The methodology used to prepare the alternatives analysis includes:

- Identifying the basic objectives of the project;
- Providing an overview of the project's potentially significant adverse impacts (including appurtenant facilities);
- Identifying and evaluating alternatives to the project and its linear facilities;
- Identifying and evaluating alternative locations for sites; and
- Evaluating the impacts of not constructing the project. (Exs. 1, pp. 9-5/9-6; 2a, p. 6-2.)

1. Project Objectives

Staff summarized Applicant's objectives for constructing the SJVEC project as follows:

- Construction and operation of a power plant with access to Fresno Local Region electrical market;
- To be located a feasible distance to a substation and key infrastructure for natural gas, water supply and transmission lines;
- Generation of approximately 1,000 MW of electricity; and;
- To be online by 2004. (Ex. 2a, p. 6-3.)

2. Potentially Significant Adverse Impacts

The environmental impacts of the project are discussed in detail in the individual subject areas of this Decision. In its Alternatives analysis, Staff did not identify any potentially significant, unmitigated, adverse environmental impacts. Our findings with respect to Staff's conclusions and Applicant's ability to mitigate impacts to levels of insignificance are discussed under the respective topics. (Ex. 2a, p. 6-3.)

3. Technological Alternatives

Applicant and Staff reviewed various alternative technologies that can be grouped according to the fuel used, which include:

- conventional boiler and steam turbine;
- simple cycle combustion turbine;
- nuclear;
- natural gas;
- coal;
- oil;
- solar;
- wind;
- hydroelectric;
- biomass; and
- geothermal technologies. (Exs. 1, p. 9-7; 2a p. 6-14/17.)

Biomass generation uses a waste vegetation fuel source such as wood chips (the preferred source) or agricultural waste. The fuel is burned to generate steam. However, Staff found that biomass facilities generate substantially greater quantities of air pollutant emissions than natural gas burning facilities. In addition, biomass plants are typically sized to generate less than 20 MW. In order to generate 1,060 MW, which is proposed for SJVEC, 53 biomass facilities generating 20 MW each would be required. However, these power plants would

have potentially significant environmental impacts of their own. (Exs. 1, p. 9-7; 2a, p. 6-16.)

Geothermal technologies use steam or high-temperature water (HTW) obtained from naturally occurring geothermal reservoirs to drive steam turbine/generators. There are vapor-dominated resources (dry, super-heated steam) and liquid-dominated resources where various techniques are utilized to extract energy from the HTW. Applicant and Staff concluded that this technology is:

limited to areas that have geologic conditions resulting in high subsurface temperatures, and there are no geothermal resources in the project vicinity (Fresno or King Counties or along a transmission corridor that supplies the Fresno local electrical market), making this technology an infeasible alternative. (Exs. 1, p. 9-7; 2a, p. 6-16.)

While hydropower does not require burning fossil fuels and may be available, this power source can cause significant environmental impacts primarily due to the inundation of many acres of potentially valuable habitat and the interference with fish movements during their life cycles. Because of these impacts, it is extremely unlikely that new hydropower facilities could be developed and permitted in California within the next several years. (Exs. 1, p. 9-7; 2a, p. 6-16.)

Wind carries kinetic energy that can be utilized to spin the blades of a wind turbine rotor and an electrical generator, which then feeds alternating current (AC) into the utility grid. Most state-of-the-art wind turbines operating today convert 35 to 40 percent of the wind's kinetic energy into electricity. Modern wind turbines represent viable alternatives to large bulk power fossil power plants as well as small-scale distributed systems. The range of capacity for an individual wind turbine today ranges from 400 watts up to 3.6-MW. (Exs. 1, p. 9-7; 2a, p. 6-15.)

California's installed 1,671-MW of wind power represents 3.7 percent of the state's electrical capacity. Although air emissions are significantly reduced or eliminated for wind facilities, they can have significant visual effects. In addition, wind turbines can cause bird mortality (especially for raptors) resulting from collision with rotating blades. Wind resources would require large land areas in order to generate 1,100 MW of electricity. Depending on the size of the wind turbines, wind generation "farms" generally require between five and 17 acres to generate one megawatt (resulting in the need for between 5,500 and 18,700 acres to generate 1,100 MW). Although 7,000 MW of new wind capacity power could cost-effectively be added to California's power supply, the lack of available transmission access is an important barrier to wind power development. *(Ibid.)*

California has a diversity of existing and potential wind resource regions that are near load centers such as San Francisco, Los Angeles, San Diego and Sacramento. However, wind energy technologies cannot provide full-time availability due to the natural intermittent availability of wind resources. Therefore, wind generation technology would not meet the project's goal, which is to provide immediate power to meet peaks in demand. *(Ibid.)*

Solar generation available currently is of two types: solar thermal power and photovoltaic (PV) power generation. Solar thermal power generation uses high temperature solar collectors to convert the sun's radiation into heat energy, which is then used to run steam power systems. Solar thermal is suitable for distributed or centralized generation, but requires far more land than conventional natural gas power plants. Solar parabolic trough systems, for instance, use approximately five acres to generate one megawatt. (Exs. 1, p. 9-7; 2a, p. 6-14/15.)

Photovoltaic (PV) power generation uses special semiconductor modules to convert sunlight into electricity. Arrays built from the panels can be mounted on the ground or on buildings, where they can also serve as roofing material.

Unless PV systems are constructed as integral parts of buildings, the most efficient PV systems require about four acres of ground area per megawatt of generation. (Ex. 2a, p. 6-14.)

Solar resources would require large land areas in order to meet the project objective to generate 1,100 MW of electricity. For example, assuming that a parabolic trough system was located in a maximum solar exposure area, such as in a desert region, generation of 1,060-MW would require 5,300 acres, which is more than 200 times the amount of land area that would be taken by the proposed plant site and linear facilities.. For a PV plant, generation of 1,060-MW would require over 4,000 acres. (Ex. 2a, p. 6-15.)

While solar generation facilities do not generate problematic air emissions and have relatively low water requirements, there are other potential impacts associated with their use. Construction of solar thermal plants can lead to habitat destruction and visual impacts. Like all technologies generating power for sale into the state's power grid, solar thermal facilities and PV generation require access to transmission lines. Large solar thermal plants must be located in desert areas with high direct normal insolation, and in these remote areas, transmission availability is limited. Additionally, solar energy technologies cannot provide full-time availability due to the natural intermittent availability of sunlight. Therefore, solar energy technologies do not meet the project needs, which is to supply immediate electric generation to accommodate peaks in electricity demand. *(Ibid.)*

Staff also reviewed measures such as conservation, district energy and demand-side management, which was deemed inadequate to provide power for the objectives that could be attributed to the SJVEC. Staff concluded that alternative generation technologies:

typically provide lower efficiencies, have specific resource needs, environmental impacts, permitting difficulties, and intermittent availability; and currently do not present feasible alternatives to the proposed project. (Ex. 2a, p. 6-14/16-17.)

4. Alternative Locations

Our record indicates too that Applicant and Staff, together, evaluated seven alternate site locations, three [11] of which did not satisfy Staff's screening criteria for inclusion in a detailed analysis. Staff identified two additional potential alternative sites, (Madera and Herdon), during its initial screening.[12] Therefore, Staff performed a detailed evaluation of four alternative sites, as follows:

- Kearney Site,
- Panoche Site,
- Gregg Site, and
- Madera Site. (Exs. 1, p. 9-2/3; 2a, p. 4-11 & *see* ALTERNATIVES Figures 1, 2 and 3 for maps of the alternative sites.)

Staff applied evaluation criteria for each of the remaining four sites, which satisfied the screening criteria, following the standards of whether the alternative site would:

- avoid or substantially lessen one or more of the potential significant effects of the SJVEC project;
- be vacant;
- be sufficiently far from moderate or high-density residential areas or to sensitive receptors (such as schools and hospitals) or to recreation areas;
- not create significant impacts of its own; and would

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[11] Applicant presented five sites as part of its Alternatives analysis. However, Staff in its screening analysis eliminated three of those sites and included two additional alternative sites that it identified. (Ex. 2a, p. 6-3.)

[12] The McCall, Helms South, and Herdon sites were eliminated from detailed consideration because initial screening demonstrated that they could not meet one or more of the Applicant's objectives for the SJVEC. Of the four remaining sites where Staff performed detailed evaluations, Applicant had included all except the Madera Site in the AFC. (Exs. 1, p. 9-3; 2a, p. 6-12/13.)

- satisfy the following criteria:
  1. Location. In order to meet reliability objectives, the site should be located near the Fresno Local Region electrical market.
  2. Site suitability. Sufficient land (30 acres) as the minimum lot size needed to accommodate the facility.
  3. Availability of infrastructure. The site should be within a reasonable distance of natural gas, water supply, and transmission interconnections. (Exs. 1, p. 9-3; 2a, p. 6-3/4.)

Following the stated objectives for SJVEC as set forth above, Applicant and Staff determined that each site was deficient in some important locational or environmental aspect and therefore eliminated all alternative sites when compared to the proposed site. (Exs. 1, pp. 9-2/-9-5; 2a, pp. 6-4/11.)

5. No Project

CEQA Guidelines and CEC regulations require us to consider the "No Project" Alternative, which assumes that the project is not constructed. Under this alternative, we compare the "No Project" Alternative to the scenario that the SJVEC project presents. (Cal. Code Regs., tit. §15126.6 (i); Exs. 1, p. 9-1; 2a, pp. 6-11/12.)

While the impacts of the SJVEC project would not occur with the No Project Alternative, Applicant and Staff concluded that project benefits would also be eliminated, such as:

- contribute to California's generating resources by adding an important 1,100 MW electrical generation facility for California's electricity supply;
- provide the potential, due to market forces, for retiring older, less efficient power plants;
- meet California's increasing demands for competitive electrical power without the resultant consequence of similar power plant construction at another location;
- provide a beneficial use for recycled water to the environmental advantage of the Fresno-Clovis Wastewater Treatment Facility, the City of Fresno and the surrounding area. (Exs. 1, p. 9-1; 2a; pp. 6-11/12.)

Conversely, if the SJVEC facility were not constructed, the proposed site would remain in agricultural production, and the construction and operational impacts of the SJVEC would not occur. The area could remain farmland or would be available for another industrial use. Potable water proposed for SJVEC's use would be available for other uses. In addition, even though the proposed parcel is designated industrial, the No Project Alternative would preserve the area's rural character, and additional power to meet both Applicant's objectives and the State's needs would not be available. *(Ibid.)*

FINDINGS AND CONCLUSIONS

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

1. The evidentiary 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. No alternative to the SJVEC project considered by the Commission, including but not limited to the "No Project" Alternative would avoid or lessen any direct, indirect, or cumulative significant adverse environmental impact.

4. No alternative to the project considered by the Commission, including but not limited to the "No Project" Alternative is feasible, because none are capable of meeting the project objectives as specified in the AFC and Staff Analysis.

We therefore conclude that the evidence of record contains an analysis of possible alternatives to the SJVEC project, including its appurtenant facilities, which satisfy the requirements of both the Warren-Alquist Act and CEQA and its implementing regulations.

III. 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 and standards, as well as the specific Conditions of Certification adopted as part of this Decision.

SUMMARY 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 by which the Commission ensures that the San Joaquin Valley Energy Center (SJVEC) is constructed and operated according to the Conditions of Certification. It essentially describes the respective duties and Commission expectations of the project owner and the Commission Staff Compliance Project Manager (CPM) in implementing the design, construction, and operation criteria set forth in this Decision.

The Commission verifies compliance with the Conditions of Certification contained in this Decision through mechanisms such as periodic reports and site visits. The Plan also contains requirements governing the planned closure, as well as the unexpected temporary or permanent closure, of the project.

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

- Set forth the duties and responsibilities of the 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 is 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.

Compliance Plan contents 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 that the:

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

2. The 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

DEFINITIONS

To ensure consistency, continuity, and efficiency, the following terms, as defined, apply to all technical areas, including Conditions of Certification: (Ex. 2a, p. 7-1.)

SITE MOBILIZATION

Moving trailers and related equipment onto the site, usually accompanied by minor ground disturbance, grading for the trailers and limited vehicle parking, trenching for construction utilities, installing utilities, grading for an access corridor, and other related activities. Ground disturbance, grading, etc. for site mobilization are limited to the portion of the site necessary for placing the trailers and providing access and parking for the occupants. Site mobilization is for temporary facilities and therefore is not considered construction. (Ex. 2a, p. 7-2.)

GROUND DISTURBANCE

Onsite activity that results in the removal of soil or vegetation, boring, trenching or alteration of the site surface. This does not include driving or parking a passenger vehicle, pickup truck, or other light vehicle, or walking on the site. *(Ibid.)*

GRADING

Onsite activity conducted with earth-moving equipment that result in alteration of the topographical features of the site such as leveling, removal of hills or high spots, or moving of soil from one area to another. *(Ibid.)*

CONSTRUCTION

[From section 25105 of the Warren-Alquist Act.] Onsite work to install permanent equipment or structures for any facility. Construction does not include the following:

- the installation of environmental monitoring equipment;
- a soil or geological investigation;
- a topographical survey;
- any other study or investigation to determine the environmental acceptability or feasibility of the use of the site for any particular facility; or
- any work to provide access to the site for any of the purposes specified above. (Ex. 2a, p. 7-2.)

START OF COMMERCIAL OPERATION

For compliance monitoring purposes, "commercial operation" is that phase of project development, which begins after the completion of start-up and commissioning, where the power plant has reached steady-state production of electricity with reliability at the rated capacity. For example, at the start of commercial operation, plant control is usually transferred from the construction manager to the plant operations manager. *(Ibid.)*

FACILITY CLOSURE

At some point in the future, the project will cease operation and close down. At that time, it will be necessary to ensure that the closure occurs in such a way that public health and safety and the environment are protected from adverse impacts. Although the project setting for this project does not appear, at this time, to present any special or unusual closure problems, it is impossible to foresee what the situation will be in 30 years or more when the project ceases operation. Therefore, provisions must be made that provide the flexibility to deal with the specific situation and project setting that exist at the time of closure. Laws, Ordinances, Regulations and Standards (LORS) pertaining to facility closure are identified in the sections dealing with each technical area. Facility closure will be consistent with LORS in effect at the time of closure. (Ex. 2a, p. 7-11/14.)

CLOSURE DEFINITIONS

There are at least three circumstances in which a facility closure can take place, planned closure, unplanned (unexpected) temporary closure, and unplanned permanent closure.

Planned Closure

A 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. (Ex. 2a, p. 7-12/13.)

Unplanned (Unexpected) Temporary Closure

An unplanned temporary closure occurs when the facility is closed suddenly and/or unexpectedly, on a short-term basis, due to unforeseen circumstances such as a natural disaster or an emergency. (Ex. 2a, p. 7-13/14.)

Unplanned (Unexpected) Permanent Closure

An unplanned permanent closure occurs if the project owner closes the facility suddenly and/or unexpectedly, on a permanent basis. This includes unplanned closure where the owner remains accountable for implementing the on-site contingency plan. It can also include unplanned closure where the project owner is unable to implement the contingency plan, and the project is essentially abandoned. (Ex. 2a, p. 7-14.)

COMPLIANCE PROJECT MANAGER (CPM) RESPONSIBILITIES

A Compliance Project Manager (CPM) will oversee the compliance monitoring and shall be responsible for the following:

1. Ensuring that the design, construction, operation, and closure of the project facilities comply with the terms and conditions of the Energy Commission Decision;
2. Resolving complaints;

3. Processing post-certification changes to the conditions of certification, project description, and ownership or operational control;
4. Documenting and tracking compliance filings; and
5. Ensuring that the compliance files are maintained and accessible. (Ex. 2a, pp. 7-2/3.)

The CPM is the contact person for the Energy Commission. The CPM will consult with appropriate responsible agencies and the Energy Commission when handling disputes, complaints, and amendments. (Ex. 2a, p. 7-3.)

All project compliance submittals are submitted to the CPM for processing. Where a submittal required by a condition of certification requires CPM approval the approval will involve all appropriate staff and management. *(Ibid.)*

The Energy Commission has established a toll free compliance telephone number of 1-800-858-0784 for the public to contact the Energy Commission about power plant construction or operation-related questions, complaints or concerns. *(Ibid.)*

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 Energy Commission's and the project owner's technical staff to review the status of all pre-construction or pre-operation requirements contained in the Energy Commission's conditions of certification to confirm that they have been met, or if they have not been met, to ensure that the proper action is taken. In addition, these meetings shall ensure, to the extent possible, that Energy Commission conditions will not delay, due to mere oversight, the facility's construction, and operation. These meetings shall also serve to preclude any last minute, unforeseen issues from arising. Pre-construction meetings held during the certification process must be publicly noticed unless they are confined to administrative issues and processes. *(Ibid.)*

Energy Commission Record

The Energy 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):

- all documents demonstrating compliance with any legal requirements relating to the construction and operation of the facility;
- all monthly and annual compliance reports filed by the project owner;
- all complaints of noncompliance filed with the Energy Commission; and
- all petitions for project or condition changes and the resulting staff or Energy Commission action. *(Ibid.)*

PROJECT OWNER RESPONSIBILITIES

It is the responsibility of the project owner 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 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 reopening of the case and revocation of Energy Commission certification, an administrative fine or other action as appropriate. A summary of the General Conditions of Certification is included as Compliance Table 1 at the conclusion of this section. The designation after each of the following summaries of the General Compliance Conditions (Com-1, Com-2, etc.) refers to the specific General Compliance Condition contained in Compliance Table 1. (Ex. 2a, pp. 7-3/4.)

Access, Compliance Condition of Certification-1 (COM-1)

The CPM, responsible Energy Commission staff, and delegate agencies or consultants, shall be guaranteed and granted unrestricted access to the power plant site, related facilities, project-related staff, and the records maintained on site, for the purpose of conducting audits, surveys, inspections, or general site visits. Although the CPM will normally schedule site visits on dates and times

agreeable to the project owner, the CPM reserves the right to make unannounced visits at any time. (Ex. 2a, p. 7-4.)

Compliance Record, COM-2

The project owner shall maintain project files onsite or at an alternative site approved by the CPM, for the life of the project unless a lesser period of time is specified by the conditions of certification. The files shall contain copies of all "as-built" drawings, all documents submitted as verification for conditions, and all other project-related documents. Energy Commission staff and delegate agencies shall, upon request to the project owner, be given unrestricted access to the files. *(Ibid.)*

Compliance Verification Submittals, COM-3

Each condition of certification is followed by a means of verification. The verification describes the Energy Commission's procedure(s) to ensure post-certification compliance with adopted conditions. The verification procedures, unlike the conditions, may be modified as necessary by the CPM, and in most cases without full Energy Commission approval. (Ex. 2a, pp. 7-4/5.)

Verification of compliance with the conditions of certification can be accomplished by:

1. reporting on the work done and providing the pertinent documentation in monthly and/or annual compliance reports filed by the project owner or authorized agent as required by the specific conditions of certification;

2. providing appropriate letters from delegate agencies verifying compliance;

3. Energy Commission staff audits of project records; and/or

4. Energy Commission staff inspections of mitigation or other evidence of mitigation.

Verification lead times (e.g., 90, 60 and 30-days) associated with start of construction may require the project owner to file submittals during the

certification process, particularly if construction is planned to commence shortly after certification. (Ex. 2a, p. 7-4.)

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. (Ex. 2a, p. 7-4/5.)

The project owner is responsible for the delivery and content of all verification submittals to the CPM, whether such condition was satisfied by work performed by the project owner or an agent of the project owner.

All submittals shall be addressed as follows:

Compliance Project Manager
California Energy Commission
1516 Ninth Street (MS-2000)
Sacramento, CA 95814

If the project owner desires Energy Commission staff action by a specific date, the project owner shall so state in its submittal and include a detailed explanation of the effects on the project if this date is not met. (Ex. 2a, p. 7-5.)

Pre-Construction Matrix and Tasks Prior to Start of Construction COM-4

Prior to commencing construction, a compliance matrix addressing <u>only</u> those conditions that must be fulfilled before the start of construction shall be submitted by the project owner to the CPM. This matrix will be included:

- with the project owner's **first** compliance submittal, or

- prior to the first pre-construction meeting, whichever comes first. It will be in the same format as the compliance matrix referenced below in **Compliance Matrix, COM-5**. (Ex. 2a, p. 7-6.)

Construction shall not commence until the pre-construction matrix is submitted, all pre-construction conditions have been complied with, and the CPM has issued a letter to the project owner authorizing construction. Various lead times (e.g., 30, 60, 90 days) for submittal of compliance verification documents to the CPM for conditions of certification are established to allow sufficient staff time to review and comment and, if necessary, allow the project owner to revise the submittal in a timely manner. This will ensure that project construction may proceed according to schedule. (Ex. 2a, pp. 7-6/7.)

Failure to submit compliance documents within the specified lead-time may result in delays in authorization to commence various stages of project development. Project owners frequently anticipate starting project construction as soon as the project is certified. In those cases, it may be necessary for the project owner to file compliance submittals prior to project certification if the required lead-time for a required compliance event extends beyond the date anticipated for start of construction. It is also important that the project owner understand that the submittal of compliance documents prior to project certification is at the owner's own risk. *(Ibid.)*

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 will submit Monthly Compliance Reports. During operation, an Annual Compliance Report must be submitted. These reports, and the requirement for an accompanying compliance matrix, are described below. The majority of the conditions of certification require that compliance submittals

be submitted to the CPM in the monthly or annual compliance reports. (Ex. 2a, pp. 7-5/6.)

Compliance Matrix, COM-5

A compliance matrix shall be submitted by the project owner to the CPM along with each monthly and annual compliance report. The compliance matrix is intended to provide the CPM with the status of all 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., 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;
7. the compliance status of each condition (e.g., "not started," "in progress" or "completed" (include the date); and
8. satisfied conditions do not need to be included in the compliance matrix after they have been identified as satisfied in at least one monthly or annual compliance report. (Ex. 2a, pp. 7-5/6.)

Monthly Compliance Report, COM-6

The first Monthly Compliance Report is due one month following the Energy Commission business meeting date on which the project was approved, unless otherwise agreed to by the CPM. The first Monthly Compliance Report shall include an initial list of dates for each of the events identified on the **Key Events List. The Key Events List Form is found at the end of this section.** (Ex. 2a, pp. 7-7/8.)

During pre-construction and construction of the project, the project owner or authorized agent shall submit an original and five copies of the Monthly

Compliance Report within 10 working days after the end of each reporting month. Monthly Compliance Reports shall be clearly identified for the month being reported. The reports shall contain, at a minimum:

1. a summary of the current project construction status, a revised/updated schedule if there are significant delays, and an explanation of any significant changes to the schedule;
2. documents required by specific conditions to be submitted along with the Monthly Compliance Report. Each of these items must be identified in the transmittal letter, and 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 conditions do not need to be included in the matrix after they have been reported as closed);
4. a list of conditions that 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. The project owner shall notify the CPM as soon as any changes are made to the project construction schedule that would affect compliance with conditions of certification;
9. a listing of the month's additions to the on-site compliance file;
10. any requests to dispose of items that are required to be maintained in the project owner's compliance file; and
11. a listing of complaints, notices of violation, official warnings, and citations received during the month, a description of the resolutions of any results complaints, and the status of any unresolved complaints. (Ex. 2a, pp. 7-7/8.)

Annual Compliance Report, COM-7

After construction is complete, the project owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports. The reports are for each year of commercial operation and are due to the CPM each year at a date agreed to by the CPM. Annual Compliance Reports shall be submitted over the life of the

project unless otherwise specified by the CPM. Each Annual Compliance Report shall identify the reporting period and shall contain the following: (Ex. 2a, p. 7-8.)

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;
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 Energy Commission or cleared by the CPM;
5. an explanation for any submittal deadlines that were missed, accompanied by an estimate of when the information will be provided;
6. a listing of filings 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;
9. an evaluation of the on-site contingency plan for unplanned facility closure, including any suggestions necessary for bringing the plan up to date [see General Conditions for Facility Closure addressed later in this section]; and
10. a listing of complaints, notices of violation, official warnings, and citations received during the year, a description of the resolution of any resolved complaints, and the status of any unresolved complaints. *(Ibid.)*

Construction and Operation Security Plan, COM-8

Thirty days prior to commencing construction, a site-specific Security Plan for the construction phase shall be developed and maintained at the project site. At least 60 days prior to the initial receipt of hazardous materials on-site, a site specific Security Plan and Vulnerability Assessment for the operational phase shall be developed and maintained at the project site. The project owner shall notify the CPM in writing that the Plan is available for review and approval at the project site.

Construction Security Plan

The Construction Security Plan must address:

1. Site fencing enclosing the construction area;
2. Use of security guards;
3. Check-in procedure or tag system for construction personnel and visitors;
4. Protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency; and
5. Evacuation procedures.

Operation Security Plan

The Operations Security Plan must address:

1. Permanent site fencing and security gate;
2. Use of security guards;
3. Security alarm for critical structures;
4. Protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency;
5. Evacuation procedures;
6. Perimeter breach detectors and on-site motion detectors;
7. Video or still camera monitoring system;
8. Fire alarm monitoring system;
9. Site personnel background checks; and
10. Site access for vendors and requirements for vendors delivering acutely hazardous materials, hydrogen gas, and 93 percent sulfuric acid to conduct personnel background security checks, consistent with the requirements for Hazardous Materials vendors to prepare and implement security plans as per 49 CFR 172.800 and to ensure that all hazardous materials drivers are in compliance with personnel background security checks as per 49 CFR Part 1572, Subparts A and B. In addition, the project owner shall prepare a Vulnerability Assessment and implement site security measures addressing acutely hazardous materials, hydrogen gas, and 93 percent sulfuric acid storage and transportation consistent with US EPA and US Department of Justice guidelines. The CPM may authorize modifications to these measures, or may require additional measures depending on circumstances unique to the facility, and in response to industry-related security concerns.

The language requirements of **COM-8** may be subject to replacement or termination pursuant to the Commission's future rulemaking or other action on

security matters, where power plant owners have the opportunity to review and comment.

Confidential Information, COM-9

Any information that the project owner deems confidential shall be submitted to the Energy Commission's Docket with an application for confidentiality. (*See* Title 20, CCR, section 2505(a).) Any information that is determined to be confidential shall be kept confidential as provided for in the pertinent regulation. (Title 20, CCR, section 2501 et. seq.) (Ex. 2a, pp. 7-8/9.)

Department of Fish and Game Filing Fee, COM-10

Pursuant to the provisions of Fish and Game Code Section 711.4, the project owner shall pay a filing fee in the amount of $850. The payment instrument shall be provided to the Energy Commission's Project Manager (PM), not the CPM, at the time of project certification and shall be made payable to the California Department of Fish and Game. The PM will submit the payment to the Office of Planning and Research at the time of filing of the notice of decision pursuant to Public Resources Code Section 21080.5. (Ex. 2a, p. 7-9.)

Reporting of Complaints, Notices, and Citations, COM-11

Prior to the start of construction, the project owner must send a letter to property owners living within one mile of the project notifying them of a telephone number to contact project representatives with questions, complaints, or concerns. If the telephone is not staffed 24 hours per day, it shall include automatic answering with date and time stamp recording. All recorded inquiries shall be responded to within 24 hours. The telephone number shall be posted at the project site and made easily visible to passersby during construction and operation. The telephone number shall be provided to the CPM who will post it on the Energy Commission's web page at:

http://www.energy.ca.gov/sitingcases/power_plants_contacts.html

Any changes to the telephone number shall be submitted immediately to the CPM who will update the web page.

In addition to the monthly and annual compliance reporting requirements described above, the project owner shall report and provide copies of all complaint forms, notices of violation, notices of fines, official warnings, and citations, within 10 days of receipt, to the CPM. Complaints shall be logged and numbered. Noise complaints shall be recorded on the form provided in the NOISE conditions of certification. All other complaints shall be recorded on the complaint form (Attachment A). *(Ibid.)*

GENERAL CONDITIONS FOR FACILITY CLOSURE

Planned Closure, COM-12

In order to ensure that a planned facility closure does not create adverse impacts, a closure process that provides for careful consideration of available options and applicable laws, ordinances, regulations, standards, and local/regional plans in existence at the time of closure, will be undertaken. To ensure adequate review of a planned project closure, the project owner shall submit a proposed facility closure plan to the Energy Commission for review and approval at least 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 Energy Commission. (Ex. 2a, pp. 7-12/13.)

The plan shall:

1. Identify and discuss any impacts and mitigation to address significant adverse impacts associated with proposed closure activities and to address facilities, equipment, or other project related remnants that will remain at the site;

2. Identify a schedule of activities for closure of the power plant site, transmission line corridor, and all other appurtenant facilities constructed as part of the project;
3. Identify any facilities or equipment intended to remain on site after closure, the reason, and any future use; and
4. Address conformance of the plan with all applicable laws, ordinances, regulations, standards, local/regional plans in existence at the time of facility closure, and applicable conditions of certification. *(Ibid.)*

In the event that there are significant issues associated with the proposed facility closure plan approval, or the desires of local officials or interested parties are inconsistent with the plan, the CPM shall hold one or more workshops and/or the Energy Commission may hold public hearings as part of its approval procedure. (Ex. 2a, p. 7-13.)

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

As necessary, prior to or during the closure plan process, the project owner shall take appropriate steps to eliminate any immediate threats to public health and safety and the environment, but shall not commence any other closure activities, until Energy Commission approval of the facility closure plan is obtained. *(Ibid.)*

Unplanned Temporary Closure/On-Site Contingency Plan, COM-13

In order to ensure that public health, safety, and the environment are protected in the event of an unplanned temporary facility closure, it is essential to have an on-site contingency plan in place. The on-site contingency plan will help to ensure that all necessary steps to mitigate public health and safety impacts and environmental impacts are taken in a timely manner. (Ex. 2a, pp. 7-13/14.)

The project owner shall submit an on-site contingency plan for CPM review and approval. The plan shall be submitted no less that 60 days (or other time agreed

to by the CPM) prior to commencement of commercial operation. The approved plan must be in place prior to commercial operation of the facility and shall be kept at the site at all times. *(Ibid.)*

The project owner, in consultation with the CPM, will update the on-site contingency plan as necessary. The CPM may require revisions to the on-site contingency plan over the life of the project. In the annual compliance reports submitted to the Energy Commission, the project owner will review the on-site contingency plan, and recommend changes to bring the plan up to date. Any changes to the plan must be approved by the CPM. *(Ibid.)*

The on-site contingency plan shall provide for taking immediate steps to secure the facility from trespassing or encroachment. In addition, for closures of more than 90 days, unless other arrangements are agreed to by the CPM, the plan shall provide for removal of hazardous materials and hazardous wastes, draining of all chemicals from storage tanks and other equipment and the safe shutdown of all equipment. (Also, see specific conditions of certification for the technical areas of Hazardous Materials Management and Waste Management.) (Ex. 2a, pp. 713/14.)

In addition, consistent with requirements under unplanned permanent closure addressed below, the nature and extent of insurance coverage, and major equipment warranties must 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. (Ex. 2a, p. 7-14.)

In the event of an unplanned temporary closure, the project owner shall notify the CPM, as well as other responsible agencies, by telephone, fax, or e-mail, within 24 hours and shall take all necessary steps to implement the on-site contingency plan. The project owner shall keep the CPM informed of the circumstances and expected duration of the closure. *(Ibid.)*

If the CPM determines that an unplanned temporary closure is likely to be permanent, or for a duration of more than twelve months, a closure plan consistent with the requirements for a planned closure shall be developed and submitted to the CPM within 90 days of the CPM's determination (or other period agreed to by the CPM). *(Ibid.)*

Unplanned Permanent Closure/On-Site Contingency Plan, COM-14

The on-site contingency plan required for unplanned temporary closure shall also cover unplanned permanent facility closure. All of the requirements specified for unplanned temporary closure shall also apply to unplanned permanent closure. (Ex. 2a, p. 7-14.)

In addition, the on-site contingency plan shall address how the project owner will ensure that all required closure steps will be successfully undertaken in the unlikely event of abandonment. *(Ibid.)*

In the event of an unplanned permanent closure, the project owner shall notify the CPM, as well as other responsible agencies, by telephone, fax, or e-mail, within 24 hours and shall take all necessary steps to implement the on-site contingency plan. The project owner shall keep the CPM informed of the status of all closure activities. *(Ibid.)*

A closure plan, consistent with the requirements for a planned closure, shall be developed and submitted to the CPM within 90 days of the permanent closure or another period of time agreed to by the CPM. *(Ibid.)*

CBO Delegation and Agency Cooperation

In performing construction and operation monitoring of the project, Commission staff acts as, and has the authority of, the Chief Building Official (CBO). Commission staff may delegate CBO responsibility to either an independent third

party contractor or the local building official. Commission staff retains CBO authority when selecting a delegate CBO including enforcing and interpreting state and local codes, and use of discretion, as necessary, in implementing the various codes and standards. (Ex. 2a, p. 7-14/15.)

Commission staff may also seek the cooperation of state, regional and local agencies that have an interest in environmental control when conducting project monitoring. (Ex. 2a, p. 7-14.)

Enforcement

The Energy Commission's legal authority to enforce the terms and conditions of its Decision is specified in Public Resources Code sections 25534 and 25900. The Energy Commission may amend or revoke the certification for any facility, and may impose a civil penalty for any significant failure to comply with the terms or conditions of the Energy Commission Decision. The specific action and amount of any fines the Energy Commission may impose would take into account the specific circumstances of the incident(s). This would include such factors as the previous compliance history, whether the cause of the incident involves willful disregard of LORS, oversight, unforeseeable events, and other factors the Energy Commission may consider. (Ex. 2a, p. 7-15.)

Moreover, to ensure compliance with the terms and conditions of certification and applicable LORS, delegate agencies are authorized to take any action allowed by law in accordance with their statutory authority, regulations, and administrative procedures. (Ex. 2a, p. 7-15.)

Noncompliance Complaint Procedures

Any person or agency may file a complaint alleging noncompliance with the conditions of certification. Such a complaint will be subject to review by the Energy Commission pursuant to Title 20, California Code of Regulations, section 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, as described in current State law and regulations, are described below. They shall be followed unless superseded by current law or regulations. *(Ibid.)*

Informal Dispute Resolution Procedure

The following procedure is designed informally to resolve disputes concerning the interpretation of compliance with the requirements of this compliance plan. The project owner, the Energy Commission, or any other party, including members of the public, may initiate this procedure for resolving a dispute. Disputes may pertain to actions or decisions made by any party including the Energy Commission's delegate agents. (Ex. 2a, pp. 7-15/16.)

This procedure may precede the more formal complaint and investigation procedure specified in Title 20, California Code of Regulations, section 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 Energy Commission, although the agreed upon resolution may result in a project owner, or in some cases the Energy Commission staff, proposing an amendment. (Ex. 2a, p. 7-16.)

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 Energy Commission for consideration via the complaint and investigation process. The procedure for informal dispute resolution is as follows:

Request for Informal Investigation

Any individual, group, or agency may request the Energy Commission to conduct an informal investigation of alleged noncompliance with the Energy

Commission's terms and conditions of certification. All requests for informal investigations shall be made to the designated CPM.

Upon receipt of a request for informal investigation, the CPM shall promptly notify the project owner of the allegation by telephone and letter. All known and relevant information of the alleged noncompliance shall be provided to the project owner and to the Energy Commission staff. The CPM will evaluate the request and the information to determine if further investigation is necessary. If the CPM finds that further investigation is necessary, the project owner will be asked to promptly investigate the matter and within seven working days of the CPM's request, provide a written report of the results of the investigation, including corrective measures proposed or undertaken, to the CPM. Depending on the urgency of the noncompliance matter, the CPM may conduct a site visit and/or request the project owner to provide an initial report, within 48 hours, followed by a written report filed within seven days. (Ex. 2a, p. 7-16.)

Request for Informal Meeting

In the event that either the party requesting an investigation or the Energy Commission staff is not satisfied with the project owner's report, investigation of the event, or corrective measures undertaken, either party may submit a written request to the CPM for a meeting with the project owner. Such request shall be made within 14 days of the project owner's filing of its written report. Upon receipt of such a request, the CPM shall:

1. immediately schedule a meeting with the requesting party and the project owner, to be held at a mutually convenient time and place;
2. secure the attendance of appropriate Energy Commission staff and staff of any other agencies with expertise in the subject area of concern, as necessary;
3. conduct such meeting in an informal and objective manner so as to encourage the voluntary settlement of the dispute in a fair and equitable manner; and
4. after the conclusion of such a meeting, promptly prepare and distribute copies to all in attendance and to the project file, a summary memorandum that fairly and accurately identifies the positions of all

parties and any conclusions reached. If an agreement has not been reached, the CPM shall inform the complainant of the formal complaint process and requirements provided under Title 20, California Code of Regulations, section 1230 et seq. (Ex. 2a, pp. 7-16/17.)

Formal Dispute Resolution Procedure-Complaints and Investigations

If either the project owner, Energy Commission staff, or the party requesting an investigation is not satisfied with the results of the informal dispute resolution process, such party may file a complaint or a request for an investigation with the Energy Commission's General Counsel. Disputes may pertain to actions or decisions made by any party including the Energy Commission's delegate agents. Requirements for complaint filings and a description of how complaints are processed are in Title 20, California Code of Regulations, section 1230 et seq. (Ex. 2a, p. 7-17.)

The Chairman, upon receipt of a written request stating the basis of the dispute, may grant a hearing on the matter, consistent with the requirements of noticing provisions. The Energy Commission shall have the authority to consider all relevant facts involved and make any appropriate orders consistent with its jurisdiction (Cal. Code Regs., tit. 20, §§ 1232-1236). *(Ibid.)*

POST CERTIFICATION CHANGES TO THE ENERGY COMMISSION DECISION: AMENDMENTS, INSIGNIFICANT PROJECT CHANGES AND VERIFICATION CHANGES, COM-15

The project owner must petition the Energy Commission to:

1. Delete or change a condition of certification;
2. Modify the project design or operational requirements; and
3. Transfer ownership or operational control of the facility. (Ex. 2a, p. 7-17.)

A petition is required for amendments and for insignificant project changes. For verification changes, a letter from the project owner is sufficient. In all cases, the petition or letter requesting a change should be submitted to the Energy Commission's Docket in accordance with Title 20, California Code of Regulations, section 1209. *(Ibid.)*

The criteria that determine which type of change process applies are explained below.

Amendment

A proposed change will be processed as an amendment if it involves a change to the requirement or protocol or in some cases the verification portion of a condition of certification, an ownership or operator change, or a potential significant environmental impact. (Ex. 2a, p. 7-17.)

Insignificant Project Change

The proposed change will be processed as an insignificant project change if it does not require changing the language in a condition of certification, have a potential for significant environmental impact, nor cause the project to violate laws, ordinances, regulations or standards. *(Ibid.)*

Verification Change

As provided in Title 20, Section 1770 (d), California Code of Regulations, verification may be modified by staff without requesting an amendment to the decision if the change does not conflict with the conditions of certification. (Ex. 2a, p. 7-18.)

KEY EVENTS LIST, COM-6

PROJECT: San Joaquin Valley Energy Center Power Plant Project

DOCKET #: **01-AFC-22**

COMPLIANCE PROJECT MANAGER: Lance Shaw

EVENT DESCRIPTION	DATE
Certification Date/Obtain Site Control	
Online Date	
POWER PLANT SITE ACTIVITIES	
Start Site Mobilization	
Start Ground Disturbance	
Start Grading	
Start Construction	
Begin Pouring Major Foundation Concrete	
Begin Installation of Major Equipment	
Completion of Installation of Major Equipment	
First Combustion of Gas Turbine	
Start Commercial Operation	
Complete All Construction	
TRANSMISSION LINE ACTIVITIES	
Start T/L Construction	
SYNCHRONIZATION WITH GRID AND INTERCONNECTION	
COMPLETE T/L CONSTRUCTION	
FUEL SUPPLY LINE ACTIVITIES	
Start Gas Pipeline Construction and Interconnection	
COMPLETE GAS PIPELINE CONSTRUCTION	
WATER SUPPLY LINE ACTIVITIES	
START WATER SUPPLY LINE CONSTRUCTION	
COMPLETE WATER SUPPLY LINE CONSTRUCTION	

TABLE 1
COMPLIANCE SECTION
SUMMARY of GENERAL CONDITIONS OF CERTIFICATION

CONDITION NUMBER	PAGE #	SUBJECT	DESCRIPTION
COM-1		Access	The project owner shall grant Energy Commission staff and delegate agencies or consultants unrestricted access to the power plant site.
COM-2		Compliance Record	The project owner shall maintain project files on-site. Energy Commission staff and delegate agencies shall be given unrestricted access to the files.
COM-3		Compliance Verification Submittals	The project owner is responsible for the delivery and content of all verification submittals to the CPM, whether such condition was satisfied by work performed or the project owner or his agent.
COM-4		Pre-construction Matrix and Tasks Prior to Start of Construction	Construction shall not commence until the all of the following activities/submittals have been completed: ▪ property owners living within one mile of the project have been notified of a telephone number to contact for questions, complaints or concerns, ▪ a pre-construction matrix has been submitted identifying only those conditions that must be fulfilled before the start of construction, ▪ all pre-construction conditions have been complied with, ▪ the CPM has issued a letter to the project owner authorizing construction.
COM-5		Compliance Matrix	The project owner shall submit a compliance matrix (in a spreadsheet format) with each monthly and annual compliance report which includes the status of all compliance conditions of certification.

CONDITION NUMBER	PAGE #	SUBJECT	DESCRIPTION
COM-6		Monthly Compliance Report including a Key Events List	During construction, the project owner shall submit Monthly Compliance Reports (MCRs) which include specific information. The first MCR is due the month following the Commission business meeting date on which the project was approved and shall include an initial list of dates for each of the events identified on the Key Events List.
COM-7		Annual Compliance Reports	After construction ends and throughout the life of the project, the project owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports.
COM-8		Security Plans	Prior to commencing construction, the project owner shall submit a Construction Security Plan. Prior to commencing operation, the project owner shall submit an Operation Security Plan.
COM-9		Confidential Information	Any information the project owner deems confidential shall be submitted to the Commission's Dockets Unit.
COM-10		Dept of Fish and Game Filing Fee	The project owner shall pay a filing fee of $850 at the time of project certification.
COM-11		Reporting of Complaints, Notices and Citations	Within 10 days of receipt, the project owner shall report to the CPM, all notices, complaints, and citations.
COM-12		Planned Facility Closure	The project owner shall submit a closure plan to the CPM at least twelve months prior to commencement of a planned closure.
COM-13		Unplanned Temporary Facility Closure	To ensure that public health, safety, and the environment are protected in the event of an unplanned temporary closure, the project owner shall submit an on-site contingency plan no less than 60 days prior to commencement of commercial operation.

CONDITION NUMBER	PAGE #	SUBJECT	DESCRIPTION
COM-14		Unplanned Permanent Facility Closure	To ensure that public health and safety and the environment are protected in the event of an unplanned permanent closure, the project owner shall submit an on-site contingency plan no less than 60 days prior to commencement of commercial operation.
COM-15		Post-certification changes to the Decision	The project owner must petition the Energy Commission to delete or change a condition of certification, modify the project design or operational requirements and/or transfer ownership of operational control of the facility.

ATTACHMENT A

COMPLAINT REPORT/RESOLUTION FORM

PROJECT NAME: San Joaquin Valley Energy Center Power Project AFC Number: **01-AFC-22**
COMPLAINT LOG NUMBER _____ Complainant's name and address: Phone number:
Date and time complaint received: Indicate if by telephone or in writing (attach copy if written): Date of first occurrence:
Description of complaint (including dates, frequency, and duration):
Findings of investigation by plant personnel: Indicate if complaint relates to violation of Energy Commission requirement: Date complainant contacted to discuss findings:
Description of corrective measures taken or other complaint resolution: Indicate if complainant agrees with proposed resolution: If not, explain: Other relevant information:
If corrective action necessary, date completed: Date first letter sent to complainant: _____(copy attached) Date final letter sent to complainant: _____(copy attached)
This information is certified to be correct. Plant Manager's Signature: _____ Date:

(Attach additional pages and supporting documentation, as required.)

IV. ENGINEERING ASSESSMENT

A. FACILITY DESIGN

Facility Design encompasses the civil, structural, mechanical, and electrical engineering design of the project. The purpose of the Facility Design analysis is to verify that the laws, ordinances, regulations and standards (LORS) applicable to the design and construction of the project have been identified; verify that the project and ancillary facilities have been described in sufficient detail, determine whether special design features should be considered during final design to deal with conditions unique to the site describe the design review and construction inspection process and establish Conditions of Certification that will be used to monitor and ensure compliance with the intent of the LORS and any special design requirements.

SUMMARY OF THE EVIDENCE

Applicant's witness sponsored testimony on Facility Design, Power Plant Reliability, and Power Plant Efficiency. He reviewed the FSA and agreed with Staff's proposed conditions of certification. (Ex. 3C, pp. 15-22.)

After reviewing Applicant's design proposals for the project's structural features, site preparation, major structures, and equipment, mechanical systems electrical designs and ancillary facilities, Staff concluded that as conditioned the project design would:

- meet all LORS; and
- impose no significant impacts on the environment. (Ex. 1, pp. 6.1-5 to 6.1-6.)

FINDINGS AND CONCLUSIONS

Based upon the uncontroverted evidence of record, the Committee finds as follows:

1. The LORS identified in the AFC and supporting documents are those applicable to the project.

2. The design, construction, and eventual closure of the project will comply with applicable engineering LORS.

3. The Conditions of Certification proposed will ensure that the proposed facilities are designed, constructed, operated, and eventually closed in accordance with applicable LORS.

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

5. 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 SJVEC project will 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) and all other applicable engineering LORS in effect at the time initial design plans are submitted to the 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.) All transmission facilities (lines, switchyards, switching stations and substations) are handled in Conditions of Certification in the Transmission System Engineering section of this document.

Protocol: In the event that the initial engineering designs are 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 thirty (30) days 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 in the area of facility design. The project owner shall provide the CPM a copy of the Certificate of Occupancy within thirty (30) days of receipt from the CBO [1998 CBC, Section 109–Certificate of Occupancy].

GEN-2 Prior to submittal of the initial engineering designs for CBO review, the project owner shall furnish to the CPM and to the CBO a schedule of facility design submittals, a Master Drawing List, and a Master Specifications List. The schedule shall contain a list of proposed submittal packages of designs, calculations, and specifications for major structures and equipment. To facilitate audits by Energy Commission staff, the project owner shall provide specific packages to the CPM when requested.

Verification: At least sixty (60) days (or project owner and CBO approved alternative timeframe) prior to the start of rough grading, the project owner shall submit to the CBO and to the CPM the schedule, the Master Drawing List, and the Master Specifications List of documents to be submitted to the CBO for review and approval. These documents shall be the pertinent design documents for the major structures and equipment listed in Table 1 below. Major structures and equipment shall be added to or deleted from the Table only with CPM approval. The project owner shall provide schedule updates in the Monthly Compliance Report.

Table 1: Major Structures and Equipment List

Equipment/System	Quantity (Plant)
Combustion Turbine (CT) Foundation and Connections	3
CT Mechanical Accessories (e.g. lube oil cooler, static motor starter, NO_X control system, compressor wash system, fire detections system, fuel heating system, etc.)	3

Equipment/System	Quantity (Plant)
Foundation(s) and Connections	
CT Structure Shell and Façade Foundation and Connections	3
CT Inlet Air Plenum and Filter Structure, Foundation and Connections	3
CT Inlet Air Evaporative Cooler Foundation and Connections	3
Combustion Turbine Generator (CTG) Foundation and Connections	3
Heat Recovery Steam Generator (HRSG) Structure, Foundation and Connections	3
HRSG Exhaust Stack, Foundation and Connections	3
HRSG Transition Duct Burner and Forced Draft Structure, Foundations and Connections	3
Selective Catalytic Reduction Unit Foundation and Connections	3
Steam Turbine (ST) Foundation and Connections	1
ST Structure Shell and Façade Foundation and Connections	1
Steam Turbine Generator (STG) Foundation and Connections	1
STG Lube Oil Skid Foundation and Connections	1
STG Hydraulic Control System Foundation and Connections	1
Mechanical Draft Evaporative Cooling Tower, Support Structures, Foundations and Connections	1 Lot
Pipe and Cable Way Structures, Foundations and Connections	1 Lot
Electrical Motor Control Center (MCC) Building Structure, Foundation and Connections	1
18kV Auxiliary Step-Down Transformer Foundation and Connections	2
230kV Step-Up Transformer, Fire Protection System Foundation and Connections	4
Load Center Transformers (4,160 to 480 Volt) Foundation(s) and Connections	1 Lot
125 VDC Power Supply System	1 Lot
Electrical Control Centers, Switchgear and	1 Lot

Equipment/System	Quantity (Plant)
Switchyard Equipment Foundations and Connections	
Power Distribution Center Foundation and Connections	1 Lot
Generator – Natural Gas Fired 1,000 kW Emergency, Foundation and Connections	1
Natural Gas Filter/Scrubber/Separator Foundation and Connections	1 Lot
Natural Gas Separator/Heater Foundation and Connections	1 Lot
Natural Gas Metering and Regulating Station Foundations and Connections	1 Lot
All Building Structures, Foundations and Connections (e.g. Control Room, Administration Building, Warehouse, Bulk Storage Building, Equipment Shelter, De-Mineralized Water Treatment Building, Mechanical Shop, Fire Pump Building, Fuel Gas Compressor Building, Compressor Building, Switchyard Control Building, Boiler Feed Pump Building, etc.)	1 Lot
Skid – Ammonia Blower Injection Foundation and Connections	1 Lot
Tank – Ammonia Storage, Foundation and Connections	1
Tank – Raw/Fire Water, 5 Million Gallon, Foundation and Connections	2
Tank – Oily Water Separator, Foundation and Connections	1 Lot
Tank – Combustion Turbine Water, Foundation and Connections	1
Tank – Demineralized Water, 500,000 Gallon, Foundation and Connections	2
Tank – Boiler Blowdown, Foundation and Connections	1 Lot
Tanks – Water Treatment Facilities (e.g. Sulfuric Acid, Scale Inhibitor, Sodium Hypochlorite, Bromine, Non-Oxidizing Biocide, Oxygen Scavenger, Amine, Phosphate, etc.) Foundation and Connections (as required by CBC)	1 Lot
Pump – Fire Water Pump Skid (electric jockey pump, electric main pump, and diesel back-up pump) Foundation and Connections	1 Lot

Equipment/System	Quantity (Plant)
Pump – HSRG Feedwater Foundation and Connections	6
Pump – Boiler Water Feed Pump Foundation and Connections	1 Lot
Pump – Demineralized Water Transfer Pump Foundation and Connections	1 Lot
Pump – Condensate Pump Foundation and Connections	3
Pump – Circulating Water Foundation and Connections	2
Pumps – Water Treatment and Cooling Systems (e.g. Auxiliary Cooling Water, Aqueous Ammonia Transfer, Aqueous Ammonia Unloading, Closed Loop Cooling Water, Oily Water Sump, Raw Water, Sulfuric Acid, Scale Inhibitor, Sodium Hypochlorite, Bromine, Non-Oxidizing Biocide, Oxygen Scavenger, Amine, Phosphate, etc.) Foundation and Connections (as required by CBC)	1 Lot
Cooling Tower/Air Cooled Condenser Structure, Foundation and Connections	1 Lot
Boiler – Auxiliary, Stack, Foundation and Connections	1
Auxiliary Boiler SCR System Foundation and Connections	1 Lot
Compressors – Air Foundation(s) and Connections	1 Lot
Compressors – Fuel Gas Foundation(s) and Connections	1 Lot
Pipeline – Water Supply	1
Pipeline – Recycled Water Supply	1
Pipeline – Natural Gas	1
Potable Water Systems	1 Lot
Chemical Containment Systems	1 Lot
Fire Suppression Systems	1 Lot
Drainage Systems (including sanitary, storm drain, and waste)	1 Lot
Waste Water Evaporation Ponds (5 Acres Each)	2
Building Energy Conservation Systems	1 Lot
Temperature Control and Ventilation Systems (including water and sewer connections)	1 Lot

Equipment/System	Quantity (Plant)
High Pressure Piping	1 Lot
HVAC and Refrigeration Systems	1 Lot

GEN-3 The project owner shall make payments to the CBO for design review, plan check and construction inspection based upon a reasonable fee schedule to be negotiated between the project owner and the CBO. These fees may be consistent with the fees listed in the 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], adjusted for inflation and other appropriate adjustments; may be based on the value of the facilities reviewed; may be based on hourly rates; or may be as otherwise agreed by the project owner and the CBO.

Verification: The project owner shall make the required payments to the CBO in accordance with the agreement between the project owner and the CBO. The project owner shall send a copy of the CBO's receipt of payment to the CPM in the next Monthly Compliance Report indicating that the applicable fees have been paid.

GEN-4 Prior to the start of rough grading, the project owner shall assign a California registered architect, structural engineer or civil engineer, as a resident engineer (RE), to be in general responsible charge of the project [Building Standards Administrative Code (Cal. Code Regs., tit. 24, § 4-209, Designation of Responsibilities).] All transmission facilities (lines, switchyards, switching stations, and substations) are handled in Conditions of Certification in the Transmission System Engineering section of this document.

The RE may delegate responsibility for portions of the project to other registered engineers. Registered mechanical and electrical engineers may be delegated responsibility for mechanical and electrical portions of the project respectively. A project may be divided into parts, provided each part is clearly defined as a distinct unit. Separate assignment of general responsible charge may be made for each designated part.

Protocol: The RE shall:

1. Monitor construction progress of work requiring CBO design review and inspection to ensure compliance with LORS;

2. Ensure that construction of all the facilities subject to CBO design review and inspection conforms in every material respect to the applicable LORS, these Conditions of Certification, approved plans, and specifications;

3. Prepare documents to initiate changes in the approved drawings and specifications when directed by the project owner or as required by conditions on the project;

4. Be responsible for providing the project inspectors and testing agency (ies) with complete and up-to-date set(s) of stamped drawings, plans, specifications and any other required documents;

5. Be responsible for the timely submittal of construction progress reports to the CBO from the project inspectors, the contractor, and other engineers who have been delegated responsibility for portions of the project; and

6. Be responsible for notifying the CBO of corrective action or the disposition of items noted on laboratory reports or other tests as not conforming to the approved plans and specifications.

The RE shall have the authority to halt construction and to require changes or remedial work, if the work does not conform to applicable requirements.

If the RE or the delegated engineers are reassigned or replaced, the project owner shall submit the name, qualifications and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer.

Verification: At least thirty (30) days (or project owner and CBO approved alternative timeframe) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, the resume and registration number of the RE and any other delegated engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the RE and other delegated engineer(s) within five days of the approval.

If the RE or the delegated engineer(s) are subsequently reassigned or replaced, the project owner has five days in which to submit the resume and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer within five days of the approval.

GEN-5 Prior to the start of construction, 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 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 require state registration to practice as a civil engineer or structural engineer in California.] All transmission facilities (lines, switchyards, switching stations, and substations) are handled in Conditions of Certification in the Transmission System Engineering section of this document.

The tasks performed by the civil, mechanical, electrical or design engineers may be divided between two or more engineers, as long as each engineer is responsible for a particular segment of the project (e.g., proposed earthwork, civil structures, power plant structures, equipment support). No segment of the project shall have more than one responsible engineer. The transmission line may be the responsibility of a separate California registered electrical engineer.

Protocols: The project owner shall submit to the CBO for review and approval, the names, qualifications, and registration numbers of all responsible engineers assigned to the project [1998 CBC, Section 104.2, Powers and Duties of Building Official].

If any one of the designated responsible engineers is subsequently reassigned or replaced, the project owner shall submit the name, qualifications and registration number of the newly assigned responsible engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer.

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 requiring design review and inspection by the CBO. At a minimum, these include: grading, site preparation, excavation, compaction, construction of secondary containment, foundations, erosion and sedimentation control structures, drainage facilities, underground utilities, culverts, site access roads, and sanitary sewer systems; and
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.

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].

<u>The design engineer shall:</u>

1. Be directly responsible for the design of the proposed structures and equipment supports;
2. Provide consultation to the RE during design and construction of the project;
3. Monitor construction progress to ensure compliance with engineering LORS;
4. Evaluate and recommend necessary changes in design; and
5. Prepare and sign all major building plans, specifications and calculations.

<u>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.</u>

<u>The electrical engineer shall</u>:

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 thirty (30) days (or project owner and CBO approved alternative timeframe) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, the resumes 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 resume and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer within five days of the approval.

GEN-6 Prior to the start of an activity requiring special inspection, the project owner shall assign to the project, qualified and certified special inspector(s) who shall be responsible for the special inspections required by the 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. All transmission facilities (lines, switchyards, switching stations, and substations) are handled in Conditions of Certification in the Transmission System Engineering section of this document.

Protocols:

The special inspector shall:

1. Be a qualified person who shall demonstrate competence, to the satisfaction of the CBO, for inspection of the particular type of construction requiring special or continuous inspection;
2. Observe the work assigned for conformance with the approved design drawings and specifications;
3. Furnish inspection reports to the CBO and RE. All discrepancies shall be brought to the immediate attention of the RE for correction, then, if uncorrected, to the CBO and the CPM for corrective action [1998 CBC, Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector]; and
4. Submit a final signed report to the RE, CBO, and CPM, stating whether the work requiring special inspection was, to the best of

the inspector's knowledge, in conformance with the approved plans and specifications and the applicable provisions of the applicable edition of the CBC.

5. 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 fifteen (15) days (or project owner and CBO approved alternative timeframe) prior to the start of an activity requiring special inspection, the project owner shall submit to the CBO for review and approval, with a copy to the CPM, the name(s) and qualifications of the certified weld inspector(s), or other certified special inspector(s) assigned to the project to perform one or more of the duties set forth above. The project owner shall also submit to the CPM a copy of the CBO's approval of the qualifications of all special inspectors in the next Monthly Compliance Report.

If the special inspector is subsequently reassigned or replaced, the project owner has five days in which to submit the name and qualifications of the newly assigned special inspector to the CBO for approval. The project owner shall notify the CPM of the CBO's approval of the newly assigned inspector within five days of the approval.

GEN-7 If any discrepancy in design and/or construction is discovered in any engineering work that has undergone CBO design review and approval, the project owner shall document the discrepancy and recommend the corrective action required [1998 CBC, Chapter 1, Section 108.4, Approval Required; Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector; and Appendix Chapter 33, Section 3317.7, Notification of Noncompliance]. The discrepancy documentation shall be submitted to the CBO for review and approval. The discrepancy documentation shall reference this Condition of Certification and, if appropriate, the applicable sections of the CBC and/or other LORS.

Verification: The project owner shall transmit a copy of the CBO's approval of any corrective action taken to resolve a discrepancy to the CPM in the next Monthly Compliance Report. If any corrective action is disapproved, the project owner shall advise the CPM, within five days, of the reason for disapproval and the revised corrective action to obtain CBO's approval.

GEN-8 The project owner shall obtain the CBO's final approval of all completed work that has undergone CBO design review and approval. The project owner shall request the CBO to inspect the completed structure and review the submitted documents. 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]. The project owner shall retain one set of approved engineering plans, specifications, and calculations at the project site or at another accessible location during the operating life of the project [1998 CBC, Section 106.4.2, Retention of Plans].

Verification: Within fifteen (15) days of the completion of any work, the project owner shall submit to the CBO, with a copy to the CPM in the next Monthly Compliance Report, (a) a written notice that the completed work is ready for final inspection, and (b) a signed statement that the work conforms to the final approved plans. After storing final approved engineering plans, specifications and calculations as described above, the project owner shall submit to the CPM a letter stating that the above documents have been stored and indicate the storage location of such documents.

CIVIL-1 The project owner shall submit to the CBO for review and approval the following:

- Design of the proposed drainage structures and the grading plan;
- An erosion and sedimentation control plan;
- Related calculations and specifications, signed and stamped by the responsible civil engineer; and
- 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 fifteen (15) days (or project owner and CBO approved alternative timeframe) prior to the start of site grading, the project owner shall submit the documents described above to the CBO for design review and approval. In the next Monthly Compliance Report following the CBO's approval, the project owner shall submit a written statement certifying that the documents have been approved by the CBO.

CIVIL-2 The resident engineer shall, if appropriate, stop all earthworks 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 24 hours, when earthwork and construction is stopped because of unforeseen adverse geologic/soil conditions. Within 24 hours of the CBO's approval to resume earthwork and construction in the affected areas, the project owner shall provide to the CPM a copy of the CBO's approval.

CIVIL-3 The project owner shall perform inspections in accordance with the 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 for which a grading permit is required shall be subject to inspection by the CBO.

Protocol: If, in the course of inspection, it is discovered that the work is not being performed in accordance with the approved plans, the discrepancies shall be reported immediately to the resident engineer, the CBO, and the CPM [1998 CBC, Appendix Chapter 33, Section 3317.7, [Notification of Noncompliance]. The project owner shall prepare a written report detailing all discrepancies and noncompliance items, and the proposed corrective action, and send copies to the CBO and the CPM.

Verification: Within five (5) 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].

Verification: Within thirty (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 of any major structure or component listed in Table 1 of Condition of Certification GEN-2, above, the project owner shall submit to the CBO for design review and approval the proposed lateral force procedures for project structures and the applicable designs, plans and drawings for project structures. Proposed lateral force procedures,

designs, plans, and drawings shall be those for the following items (from Table 1, above):

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

Construction of any structure or component shall not commence until the CBO has approved the lateral force procedures to be employed in designing that structure or component.

Protocol: The project owner shall:

1. Obtain approval from the CBO of lateral force procedures proposed for project structures;
2. Obtain approval from the CBO for the final design plans, specifications, calculations, soils reports, and applicable quality control procedures. If there are conflicting requirements, the more stringent shall govern (i.e., highest loads, or lowest allowable stresses shall govern). All plans, calculations, and specifications for foundations that support structures shall be filed concurrently with the structure plans, calculations, and specifications [1998 CBC, Section 108.4, Approval Required];
3. Submit to the CBO the required number of copies of the structural plans, specifications, calculations, and other required documents of the designated major structures 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 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
4. Ensure that the final plans, calculations, and specifications clearly reflect the inclusion of approved criteria, assumptions, and methods used to develop the design. The final designs, plans, calculations and specifications shall be signed and stamped by the responsible design engineer [1998 CBC, Section 106.3.4, Architect or Engineer of Record].

Verification: At least thirty (30) days (or project owner and CBO approved alternative timeframe) prior to the start of any increment of construction of any structure or component listed in Table 1 of **Condition of Certification GEN-2** above, 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 twenty (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 engineering LORS.

STRUC-2 The project owner shall submit to the CBO the required number of sets of the following documents related to work that has undergone CBO design review and approval:

1. Concrete cylinder strength test reports (including date of testing, date sample taken, design concrete strength, tested cylinder strength, age of test, type and size of sample, location and quantity of concrete placement from which sample was taken, and mix design designation and parameters);
2. Concrete pour sign-off sheets;
3. Bolt torque inspection reports (including location of test, date, bolt size, and recorded torques);
4. Field weld inspection reports (including type of weld, location of weld, inspection of non- destructive testing (NDT) procedure and results, welder qualifications, certifications, qualified procedure description or number (ref: AWS); and
5. Reports covering other structural activities requiring special inspections shall be in accordance with the 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 (5) 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 [1998 CBC, Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector]. The NCR shall reference the Condition(s) of Certification and the applicable CBC chapter and section. Within five (5) 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 fifteen (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.

Verification: At least thirty (30) days (or project owner and CBO approved alternate timeframe) prior to the start of installation of the tanks or vessels containing the above specified quantities of toxic or hazardous materials, the project owner shall submit to the CBO for design review and approval final design plans, specifications, and calculations, including a copy of the signed and stamped engineer's certification.

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

MECH-1 The project owner shall submit, for CBO design review and approval, the proposed final design, specifications, and calculations for each plant major piping and plumbing system listed in Table 1, Condition of Certification GEN-2, above. Physical layout drawings and drawings not related to code compliance and life safety need not be submitted. The submittal shall also include the applicable QA/QC procedures. Upon completion of construction of any such major piping or plumbing system, the project owner shall request the CBO's inspection approval of said construction [1998 CBC, Section 106.3.2, Submittal Documents; Section 108.3, Inspection Requests; Section 108.4, Approval Required; 1998 California

Plumbing Code, Section 103.5.4, Inspection Request; Section 301.1.1, Approval].

Protocol: The responsible mechanical engineer shall stamp and sign all plans, drawings and calculations for the major piping and plumbing systems subject to the CBO design review and approval, and submit a signed statement to the CBO when the said proposed piping and plumbing systems have been designed, fabricated and installed in accordance with all of the applicable laws, ordinances, regulations and industry standards [Section 106.3.4, Architect or Engineer of Record], which may include, but not be limited to:

1. American National Standards Institute (ANSI) B31.1 (Power Piping Code);
2. ANSI B31.2 (Fuel Gas Piping Code);
3. ANSI B31.3 (Chemical Plant and Petroleum Refinery Piping Code);
4. ANSI B31.8 (Gas Transmission and Distribution Piping Code);
5. Title 24, California Code of Regulations, Part 5 (California Plumbing Code);
6. Title 24, California Code of Regulations, Part 6 (California Energy Code, for building energy conservation systems and temperature control and ventilation systems);
7. Title 24, California Code of Regulations, Part 2 (California Building Code); and
8. Specific City/County code.

The CBO may deputize inspectors to carry out the functions of the code enforcement agency [1998 CBC, Section 104.2.2, Deputies].

Verification: At least thirty (30) days (or project owner and CBO approved alternative timeframe) prior to the start of any increment of major piping or plumbing construction listed in Table 1, Condition of Certification GEN-2 above, the project owner shall submit to the CBO for design review and approval the final plans, specifications and calculations, including a copy of the signed and stamped statement from the responsible mechanical engineer certifying compliance with the applicable LORS, and shall send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

The project owner shall transmit to the CPM, in the Monthly Compliance Report following completion of any inspection, a copy of the transmittal letter conveying the CBO's inspection approvals.

MECH-2 For all pressure vessels installed in the plant, the project owner shall submit to the CBO and California Occupational Safety and Health Administration (Cal-OSHA), prior to operation, the code certification papers and other documents required by the applicable

LORS. Upon completion of the installation of any pressure vessel, the project owner shall request the appropriate CBO and/or Cal-OSHA inspection of said installation [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 thirty (30) days (or project owner and CBO approved alternative timeframe) prior to the start of on-site fabrication or installation of any pressure vessel, the project owner shall submit to the CBO for design review and approval, the above listed documents, including a copy of the signed and stamped engineer's certification, with a copy of the transmittal letter to the CPM.

The project owner shall transmit to the CPM, in the Monthly Compliance Report following completion of any inspection, a copy of the transmittal letter conveying the CBO's and/or Cal-OSHA inspection approvals.

MECH-3 The project owner shall submit to the CBO for design review and approval the design plans, specifications, calculations and quality control procedures for any heating, ventilating, air conditioning (HVAC) or refrigeration system. Packaged HVAC systems, where used, shall be identified with the appropriate manufacturer's data sheets.

Protocol: The project owner shall design and install all HVAC and refrigeration systems within buildings and related structures in accordance with the CBC and other applicable codes. Upon completion of any increment of construction, the project owner shall request the CBO's inspection and approval of said construction. The final plans, specifications, and calculations shall include approved criteria, assumptions, and methods used to develop the design. In addition, the responsible mechanical engineer shall sign and stamp all plans, drawings and calculations and submit a signed statement to the CBO that the proposed final design plans, specifications and calculations conform with the applicable LORS [1998 CBC, Section 108.7, Other Inspections; Section 106.3.4, Architect or Engineer of Record].

Verification: At least thirty (30) days (or project owner and CBO approved alternative timeframe) prior to the start of construction of any HVAC or refrigeration system, the project owner shall submit to the CBO the required HVAC and refrigeration calculations, plans and specifications, including a copy of the signed and stamped statement from the responsible mechanical engineer certifying compliance with the CBC and other applicable codes, with a copy of the transmittal letter to the CPM.

ELEC-1 Prior to the start of any increment of electrical construction for electrical equipment and systems 480 volts and higher, listed below, with the exception of underground duct work and any physical layout drawings and drawings not related to code compliance and life safety, the project owner shall submit, for CBO design review and approval, the proposed final design, specifications and calculations [CBC 1998, Section 106.3.2, Submittal documents]. Upon approval, the above listed plans, together with design changes and design change notices, shall remain on the site or at another accessible location for the operating life of the project. The project owner shall request that the CBO inspect the installation to ensure compliance with the requirements of applicable LORS [1998 CBC, Section 108.4, Approval Required, and Section 108.3, Inspection Requests]. All transmission facilities (lines, switchyards, switching stations, and substations) are handled in Conditions of Certification in the Transmission System Engineering section of this document.

Protocols: Final plant design plans to include:

1. one-line diagrams for the 13.8 kV, 4.16 kV and 480 V systems; and
2. system grounding drawings.

Final plant calculations to establish:

1. short-circuit ratings of plant equipment;
2. ampacity of feeder cables;
3. voltage drop in feeder cables;
4. system grounding requirements;
5. coordination study calculations for fuses, circuit breakers and protective relay settings for the 13.8 kV, 4.16 kV and 480 V systems;
6. system grounding requirements; and
7. lighting energy calculations.

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

- receipt or delay of major electrical equipment;
- testing or energization of major electrical equipment; and 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.
- a signed statement by the registered electrical engineer certifying that the proposed final design plans and specifications conform to requirements set forth in the Energy Commission Decision.

Verification: At least thirty (30) days (or project owner and CBO approved alternative timeframe) prior to the start of each increment of electrical construction, the project owner shall submit to the CBO for design review and approval the above listed documents. The project owner shall include in this submittal a copy of the signed and stamped statement from the responsible electrical engineer attesting compliance with the applicable LORS, and shall send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

B. POWER PLANT EFFICIENCY

The Energy Commission makes findings as to whether energy use by the SJVEC will result in significant adverse impacts on the environment, as defined in the California Environmental Quality Act (CEQA). If the Energy Commission finds that the SJVEC consumption of energy creates a significant adverse impact, it must determine whether there are any feasible mitigation measures that could eliminate or minimize the impacts. In this analysis, we address the issue of inefficient and unnecessary consumption of energy.

SUMMARY OF THE EVIDENCE

As proposed, the SJVEC is an exclusively natural gas burning facility that would engage:

- three Siemens-Westinghouse 501FD combustion turbine generators with inlet air fogging systems and steam injection, producing approximately 183 MW each at average ambient conditions with inlet air fogging and no steam injection;
- three multi-pressure heat recovery steam generators (HRSGs) with duct burners; and
- one three-pressure, reheat, condensing steam turbine generator producing a maximum of 512 MW (average ambient conditions). (Ex. 2a, p. 5.3-2.)

The facility would be arranged in a three-on-one combined cycle train, totaling approximately 1,060 MW at average ambient conditions. Staff testified that under expected project conditions, the SJVEC would burn natural gas at a nominal rate of 120 billion Btu per day lower heating value (LHV). Under expected project conditions, electricity would be generated:

- at a baseload (840 MW) efficiency of approximately 53.2 percent LHV;
- at an additional peaking capacity (up to 220 MW) with an incremental efficiency of 41 to 42 percent LHV,
- yielding a full load (up to 1,060 MW) efficiency ranging from 51 to 51.5 percent LHV. (Ex. 2a, pp. 5.3-2/3.)

Staff concluded that SJVEC's generating efficiency of approximately 56 percent LHV compares favorably to the average fuel efficiency of a typical 1960s-era

utility company baseload power plant at approximately 35 percent LHV. Further, Staff concluded that:

- SJVEC's natural gas would be supplied from the existing PG&E system via PG&E's Line 401 and Line 2 (located approximately 20 miles west of the SJVEC site);
- Line 401 is capable of delivering the required quantity of gas to the SJVEC;
- PG&E gas supply infrastructure is extensive, with access to vast reserves of gas from Canada and the southwest United States, thus it offers far more gas supply than would be required for a project this size so that it is highly unlikely that the SJVEC could represent a substantial increase in demand for natural gas in California;
- SJVEC's project configuration (combined cycle) and generating equipment (F-class gas turbines) represent the most efficient and feasible combination to satisfy the project objectives, which include competing as a merchant plant, generating energy for sale on the spot market, and directly to customers via short-, mid- and long-term contracts;
- There are no alternatives that could significantly reduce energy consumption.
- No cumulative impacts on energy resources are likely; and
- Closure of the facility will not present significant impacts on electric system efficiency. (Ex. 2a, pp. 5.3-3/8.)

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, the Energy Commission finds as follows:

1. The SJVEC project will not create significant adverse effects on energy supplies or resources in California.

2. The SJVEC project will not consume energy in a wasteful or inefficient manner.

3. The SJVEC project will consist of three "f"-class combustion turbine generators with inlet air fogging systems and power augmentation via steam injection generating approximately 183 MW each at base load under average ambient conditions, three multi-pressure heat recovery steam generators (HRSGs) with duct burners, and one three pressure,

reheat, condensing steam turbine generator generating approximately 512-MW under average ambient conditions with maximum HRSG duct firing, arranged in a three-on-one combined cycle configuration, totaling approximately 840-MW at base load, with up to an additional 220-MW of peaking capacity provided by HRSG duct burners and combustion turbine power augmentation via steam injection.

We therefore conclude that the SJVEC project will not cause any significant adverse impacts to energy supplies or energy resources. The project will conform will all applicable laws, ordinances, regulations, and standards (LORS) related to Power Plant Efficiency. No Conditions of Certification are proposed concerning the topic of Power Plant Efficiency.

C. POWER PLANT RELIABILITY

In this analysis, the Energy Commission addresses the reliability issues of the project to determine if the power plant is likely to be built in accordance with typical industry norms for reliability of power generation. This level of reliability is useful as a benchmark because the resulting project would likely not degrade the overall reliability of the electric system it serves. (Ex. 2a, p. 5.4-1.)

SUMMARY OF THE EVIDENCE

Staff concluded that the SJVEC project would be:

- built and operated in a manner consistent with industry norms for reliable operation, and that Applicant's predicted equivalent availability factor in the 92 to 98 percent range is achievable in light of the industry norm of 91.5 percent for this type of plant;
- designed with appropriate functional redundancy to ensure its reliable performance over an intended 30-year life span, and that the facility would implement quality assurance/quality control programs during design, procurement, construction, and operation to ensure acceptable reliability; and
- serviced by natural gas and water supplies in adequate quantity. (Ex. 2a, p. 5.4-1, 3/5, 7/8.)

Flooding

The site is essentially flat with an elevation of approximately 170 feet above mean sea level and is not within either the 100- or 500-year flood plain. Applicant will employ a storm water detention pond to limit storm water discharges to pre-construction flow rates. Staff believes there are no concerns with the power plant functional reliability due to flooding events. (Ex. 2a, p. 5.4-6.)

Seismic Shaking

The site lies within Seismic Zone 3 (as delineated on Figure 16-2 of the California Building Code (CBC).) The SJVEC project would be designed and constructed based upon the latest appropriate LORS, which include the CBC. Compliance with current LORS (the CBC's applicable seismic design requirements) represents an upgrade to performance during seismic shaking compared to older facilities, because the CBC is revised when necessary to keep it current. CBC compliance will ensure that the SJVEC is constructed following the latest seismic design LORS. Staff therefore believes that the SJVEC project will likely perform at least as well as, and perhaps better than, existing plants in the electric power system and that there is no real concern over its reliability affecting the electric system's reliability due to seismic events. (Ex. 2a, p. 5.4-6; *see* **Facility Design Condition GEN-1**, *supra*.)

FINDINGS AND CONCLUSIONS

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

1. The SJVEC project will ensure equipment availability by implementing quality assurance/quality control programs during design, procurement, construction, and operation of the plant and by providing for adequate maintenance and repair of the equipment and systems.

2. There is adequate fuel and water availability and capacity for project operations.

3. In light of the historical performance of California power plants and the electrical system in seismic events, there is no special concern with power plant functional reliability affecting the electric system's reliability due to seismic events.

4. The SJVEC project's estimated 92-98 percent availability factor is consistent with, or exceeds industry norms for power plant reliability.

We therefore conclude that the project will not have an adverse effect on system reliability. No Conditions of Certification are required for this topic.

D. TRANSMISSION SYSTEM ENGINEERING

The Warren-Alquist Act requires the Energy Commission to "prepare a written decision that includes:

- Specific provisions relating to the manner in which the proposed facility is to be designed, sited, and operated in order to protect environmental quality and assure public health and safety, and
- Findings regarding the conformity of the proposed site and related facilities…with public safety standards…and with other relevant local, regional, state and federal standards, ordinances, or laws. (Pub. Res. Code, § 25523 (a) & (d) 1.)

SUMMARY OF THE EVIDENCE

Located in the City of San Joaquin, the proposed SJVEC would interconnect 1,500 feet to the south with the existing PG&E transmission network through PG&E's Helm Substation. PG&E's transmission network in the City of San Joaquin is part of the Greater Fresno [Transmission] Area and, according to PG&E's draft study, which is contained in the "Greater Fresno Area Long Term Supply Planning Report":

> [The Greater Fresno Area] "primarily imports electric transmission power through eleven 230 kV circuits and one 115 kV double circuit tower." (Exs. 3G, p. 84; 2a, p. 5.5-4.)

Applicant provided a System Impact Study (SIS) for the SJVEC that studied the impacts of the proposed project on PG&E's network in the Greater Fresno Area. According to Staff, the SIS concluded that SJVEC's operation could result in several normal overloads and many contingency overloads. Staff in turn identified three transmission lines whose reconductoring is a reasonably foreseeable consequence of SJVEC's operation. (Exs. 3G, p. 84; 3G.1; 2a, p. 5.5-4; 2b, p. 4-28.)

Applicant plans to construct approximately 1,500 feet of new double-circuit 230-kV overhead transmission lines for the interconnection to the PG&E electrical grid. As proposed, the SJVEC will connect by looping the Panoche–McCall 230 kV line and the Panoche–Kearney 230 kV line into the SJVEC switchyard. This would require two new double circuit 230 kV lines approximately 1,500 feet in length. These lines would use the same right-of-way and would change the existing PG&E network by looping into two lines. The existing Panoche–McCall (Helm) 230 kV line would become the Panoche–SJVEC 230 kV line and the SJVEC–McCall 230 kV line. The existing Panoche–Kearney 230 kV line would become the Panoche–Helm 230 kV, and the SJVEC–Kearney 230 kV lines. The new lines would be constructed with 954 thousand circular mills (kcmil) 45/7 ACSS "rail" or a similar conductor. Applicant, PG&E, the California Independent System Operation (Cal-ISO) and the CEC staff have all concluded that the proposed interconnection will comply with all LORS and will have no impact on PG&E's transmission system.[13] (Exs. 3G, p. 84; 3G.1-3G.3; 2a, p. 5.5-1/3-4.)

Staff concluded that reconductoring of the Helm and Kearney 230 kV lines and the Panoche–Helm #1 and #2 circuits would result in local system benefits to include:

- providing considerably greater flexibility in routing power in the Greater Fresno Area transmission network, even should the San Joaquin Valley Energy Center not be built;
- ensuring that the SJVEC could generate at its rated net maximum generation output of 1,097-MW; and

[13] The Cal-ISO is responsible for ensuring electric system reliability for all participating transmission owners. In addition, the Cal-ISO determines both the standards necessary to achieve reliability, and whether a proposed project conforms to those standards. On December 14, 2001, the Cal-ISO issued a preliminary approval to connect the SJVEC to the PG&E network. The Cal-ISO will grant final approval for interconnection based on the results of the Detailed Facility Study. (Exs. 3G, p. 84; 3G.2; 2a, p. 5.5-6.)

- increasing the capacity and reliability of power deliveries to and from the Greater Fresno Area.[14] (Exs. 3G, p. 84; 3G.4; 2a, p. 5.5-4; 2b, p. 4-28.)

Finally, Staff concluded that SJVEC's operation in conjunction with existing and anticipated generation projects in California could have significant negative cumulative impacts. SJVEC's proposed location in the Greater Fresno Area places the project near a significant load center and the size of the plant (1,097-MW) places a significant stress on the existing transmission network as the SIS identified. The Cal-ISO will identify those additional mitigation measures that are necessary to address cumulative impacts beyond the Energy Commission's jurisdiction. We have imposed here the necessary mitigation to ensure that the SJVEC's direct and indirect impacts are less than significant. Other, currently unknown, plants located in the Greater Fresno Area will also have impacts on the transmission network and could require significant downstream facilities. Impacts of these potential projects will be analyzed and mitigated as part of the application process of each project. (Exs. 2a, p. 5.5-7; 2b, p. 4-28.)

At our Committee Conference on December 23, 2003, the Committee accepted the parties' stipulation to reopen our evidentiary record to accept Staff's November 19, 2003, supplemental analysis of reconductoring (Supplemental Analysis). Our Exhibit List herein is amended to accept the Supplemental Analysis as Exhibit 3G.5. We agree with Staff's conclusions in the Supplemental Analysis of no environmental impact due to reconductoring. (12/23/03 RT 4:14-6:5;14:6-16.)

[14] Staff also concluded that other parts of the transmission and distribution system in the Greater Fresno Area might also have to be upgraded in order to take full advantage of the increased capacity of the Helm-Kearney 230-kV and the Panoche–Helm #1 and #2 lines. However, these "downstream upgrades" would be outside of the Energy Commission's jurisdiction. (Exs. 3G, p. 84; 2a, p. 5.5-4; 2b, p. 4-28.)

FINDINGS AND CONCLUSIONS

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

1. Applicant provided a System Impact/Facilities Study to analyze any potential reliability and congestion impacts that could occur when the proposed project interconnects to PG&E's transmission grid.

2. With implementation of the proposed Conditions of Certification, the proposed project will comply with applicable federal, state, and local LORS.

3. The analysis contained in the testimony of record establishes that the proposed SJVEC switchyard and interconnection facilities to PG&E's transmission grid will be adequate and reliable.

We therefore conclude that with the implementation of the various mitigation measures specified in this Decision, the proposed transmission interconnect for the project will not contribute to significant direct, indirect, or cumulative environmental impacts within the Energy Commission's jurisdiction. The Conditions of Certification below ensure that the transmission related aspects of the SJVEC would be designed, constructed, and operated in conformance with applicable LORS identified in the appropriate portions of Appendix A of this Decision.

We further conclude that interconnection of the project at PG&E's transmission grid 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 furnish to the CPM and to the CBO a schedule of transmission facility design submittals, a Master Drawing List, a Master Specifications List, and a Major Equipment and Structure List. The schedule shall contain a description and list of proposed submittal packages for design, calculations, and specifications for major structures and equipment. To facilitate audits by Energy Commission staff, the

project owner shall provide designated packages to the CPM when requested.

Verification: At least 60 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of construction, the project owner shall submit the schedule, a Master Drawing List, and a Master Specifications List to the CBO and to the CPM. The schedule shall contain a description and list of proposed submittal packages for design, calculations, and specifications for major structures and equipment (see a list of major equipment in **Table 1: Major Equipment List** below). Additions and deletions shall be made to the table only with CPM and CBO approval. The project owner shall provide schedule updates in the Monthly Compliance Report.

Table 1: Major Equipment List
Breakers
Step-up Transformer
Switchyard
Busses
Surge Arrestors
Disconnects
Take Off Facilities
Electrical Control Building
Switchyard Control Building
Transmission Pole/Tower
Grounding System

TSE-2 Prior to the start of construction the project owner shall assign an electrical engineer and at least one of each of the following to the project: A) a civil engineer; B) a geotechnical engineer or a civil engineer experienced and knowledgeable in the practice of soils engineering; C) a design engineer who is either a structural engineer or a civil engineer fully competent and proficient in the design of power plant structures and equipment supports; or D) a mechanical engineer. (Business and Professions Code Sections 6704 et seq., require state registration to practice as a civil engineer or structural engineer in California.)

The tasks performed by the civil, mechanical, electrical or design engineers may be divided between two or more engineers, as long as

each engineer is responsible for a particular segment of the project (e.g., proposed earthwork, civil structures, power plant structures, equipment support). No segment of the project shall have more than one responsible engineer. The transmission line may be the responsibility of a separate California registered electrical engineer. The civil, geotechnical or civil and design engineer assigned in conformance with Facility Design condition **GEN-5** may be responsible for design and review of the TSE facilities.

The project owner shall submit to the CBO for review and approval the names, qualifications and registration numbers of all engineers assigned to the project. If any one of the designated engineers is subsequently reassigned or replaced, the project owner shall submit the name, qualifications and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer. This engineer shall be authorized to halt earthwork and to require changes if site conditions are unsafe or do not conform with predicted conditions used as a basis for design of earthwork or foundations.

The electrical engineer shall:

1. Be responsible for the electrical design of the power plant switchyard, outlet and termination facilities; and

2. Sign and stamp electrical design drawings, plans, specifications, and calculations.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval the names, qualifications and registration numbers of all the responsible engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the engineers within five days of the approval.

If the designated responsible engineer is subsequently reassigned or replaced, the project owner has five days in which to submit the name, qualifications, and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer within five days of the approval.

TSE-3 The project owner shall keep the CBO informed regarding the status of engineering design 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.

Verification: The project owner shall submit monthly construction progress reports to the CBO and CPM to be included in response to **TSE-3**. 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, of the reason for disapproval, and the revised corrective action to obtain CBO's approval.

TSE-4 For the power plant switchyard, outlet line and termination, the project owner shall not begin any increment of construction until plans for that increment have been approved by the CBO. These plans, together with design changes and design change notices, shall remain on the site for one year after completion of construction. The project owner shall request that the CBO inspect the installation to ensure compliance with the requirements of applicable LORS. The following activities shall be reported in the Monthly Compliance Report:

a) receipt or delay of major electrical equipment;

b) testing or energization of major electrical equipment; and

c) the number of electrical drawings approved, submitted for approval, and still to be submitted.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of each increment of construction, the project owner shall submit to the CBO for review and approval the final design plans, specifications and calculations for equipment and systems of the power plant switchyard, outlet line and termination, including a copy of the signed and stamped statement from the responsible electrical engineer attesting compliance with the applicable LORS, and send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

TSE-5 The project owner shall ensure that the design, construction, and operation of the proposed transmission facilities will conform to all applicable LORS, including the requirements listed below. The substitution of Compliance Project Manager (CPM) and CBO approved "equivalent" equipment and equivalent substation configurations is acceptable. The project owner shall submit the required number of copies of the design drawings and calculations as determined by the CBO.

a. The power plant switchyard and outlet line shall meet or exceed the electrical, mechanical, civil and structural requirements of CPUC General Order 95 or National Electric Safety Code (NESC), Title 8 of the California Code and Regulations (Title 8), Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders," National Electric Code (NEC) and related industry standards.

b. Breakers and busses in the power plan switchyard and other switchyards, where applicable, shall be sized to comply with a short-circuit analysis.

c. 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.

d. Termination facilities shall comply with PG&E's Interconnection Handbook and applicable interconnection standards.

e. The project conductors shall be sized to accommodate the full output from the project.

f. The project owner shall provide:

i. The final Detailed Facility Study (DFS) including a description of facility upgrades, operational mitigation measures, and/or Special Protection System sequencing and timing if applicable,

ii. Executed Facility Interconnection Agreement,

iii. Cal-ISO Participating Generator Agreement, and

iv. Verification of Cal-ISO Notice of Synchronization.

Verification: At least 60 days prior to the start of construction of transmission facilities, the project owner shall submit the following materials to the CBO for approval:

1. Design drawings, specifications and calculations conforming with CPUC General Order 95 or NESC, Title 8, Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders," NEC, applicable interconnection standards and related industry standards, for the poles/towers, foundations, anchor bolts, conductors, grounding systems and major switchyard equipment.

2. For each element of the transmission facilities identified above, the submittal package to the CBO shall contain the design criteria, a discussion of the calculation method(s), a sample calculation based on "worst case conditions"[15] and a statement signed and sealed by the registered engineer in responsible charge, or other acceptable alternative verification, that the transmission element(s) will conform with CPUC General Order 95 or NESC, Title 8, California Code of Regulations, Articles 35, 36 and 37 of the, "High Voltage Electric Safety Orders," NEC, PG&E's Interconnection Handbook, applicable interconnection standards, and related industry standards.

3. Electrical one-line diagrams signed and sealed by the registered professional electrical engineer in responsible charge, a route map, and an engineering description of equipment and the configurations covered by requirements **TSE-5** a) through f) above.

[15] Worst-case conditions for the foundations would include, for instance, a dead-end or angle pole.

4. The Facilities Study and signed letter from the applicant stating that mitigation is acceptable shall be provided concurrently to the CPM and CBO. Substitution of equipment and substation configurations shall be identified and justified by the project owner for CBO approval.

TSE-6 The project owner shall inform the CPM and CBO of any impending changes that may not conform to the requirements **TSE-5** a) through f), and have not received CPM and CBO 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 CBO and the CPM.

Verification: At least 60 days prior to the construction of transmission facilities, the project owner shall inform the CBO and the CPM of any impending changes that may not conform to requirements of **TSE-5** and request approval to implement such changes.

TSE-7 The applicant shall provide the following Notice to the Cal-ISO prior to synchronizing the facility with the California Transmission system:

1. At least one week prior to synchronizing the facility with the grid for testing, provide the Cal-ISO a letter stating the proposed date of synchronization; and
2. At least one business day prior to synchronizing the facility with the grid for testing, provide telephone notification to the ISO Outage Coordination Department, Monday through Friday, between the hours of 0700 to 1530 at (916) 351-2300.

Verification: The applicant shall provide copies of the Cal-ISO letter to the CPM when it is sent to the Cal-ISO one week prior to initial synchronization with the grid. A report of conversation with the Cal-ISO shall be provided electronically to the CPM one day before synchronizing the facility with the California transmission system for the first time.

TSE-8 The project owner shall be responsible for the inspection of the transmission facilities during and after project construction, and any subsequent CPM and CBO approved changes thereto, to ensure conformance with CPUC GO-95 or NESC, Title 8, CCR, Articles 35, 36 and 37 of the, "High Voltage Electric Safety Orders," PG&E's Interconnection Handbook, NEC and related industry standards. In case of non-conformance, the project owner shall inform the CPM and CBO in writing, within 10 days of discovering such non-conformance and describe the corrective actions to be taken.

Verification: Within 60 days after first synchronization of the project, the project owner shall transmit to the CPM and CBO:

1. “As built” engineering description(s) and one-line drawings of the electrical portion of the facilities signed and sealed by the registered electrical engineer in responsible charge. A statement attesting to conformance with CPUC GO-95 or NESC, Title 8, California Code of Regulations, Articles 35, 36 and 37 of the, “High Voltage Electric Safety Orders,” PG&E’s Interconnection Handbook NEC, related industry standards, and these conditions shall be provided concurrently.

2. An “as built” engineering description of the mechanical, structural, and civil portion of the transmission facilities signed and sealed by the registered engineer in responsible charge or acceptable alternative verification. “As built” drawings of the mechanical, structural, and civil portion of the transmission facilities shall be maintained at the power plant and made available, if requested, for CPM audit as set forth in the “Compliance Monitoring Plan.”

3. A summary of inspections of the completed transmission facilities, and identification of any nonconforming work and corrective actions taken, signed and sealed by the registered engineer in charge.

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 law. 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.

SUMMARY OF THE EVIDENCE

SJVEC's proposed site is in the City of San Joaquin, in an area zoned for industrial uses with relatively few residences. The surrounding land is mainly agricultural through which the routes of the new 230 kV lines and the re-routed 70 kV lines would pass as they extend from the project site to the proposed points of interconnection with PG&E's electrical grid at the Helm Substation 1500 feet to the south. The relative lack of residences along the identified routes means that the residential power-line-field-exposure, which is at the root of the present health concern in this analysis, would be relatively insignificant for this project. The only exposure of potential significance would be to workers on site, as well as visitors to the site. Such exposures are short term and are not a significant part of the present health concern. (Ex. 2a, p. 4-11.4.)

Aviation Hazard

Airports nearest to the project site are the Du Bois Ranch Airport, 6.2 miles to the northeast and the San Joaquin Airport, approximately 1.7 miles northwest of the proposed site. At such distances, the project's line towers, which would have a maximum height of 125 feet-less than the FAA danger threshold of 200 feet-, would not pose a significant hazard to any aircraft utilizing area airports. (Ex. 2a, p. 4-11.5.)

Audible Noise and Radio Frequency Interference

The proposed interconnection and re-routed transmission lines would be designed, built, and maintained to minimize the features responsible for line-related audible noise and interference with radio or television reception around their rights-of-way. The potential for such electric field-related impacts (and related complaints) is further minimized by the general lack of residences in the line's field impact area. FCC regulations require that Applicant mitigate all interference-related complaints and Staff has recommended a specific condition of certification in the unlikely event of occurrence. (Ex. 2a, p. 4-11.5; *see* **TLSN-2**.)

Fire Hazard

Applicant intends to comply with the requirements of California Public Utilities Commission (CPUC) General Order-95, which would ensure that the proposed transmission line is adequately located away from trees and other combustible objects to prevent contact-related fires or minimize such fires when they occur. The potential for such fires is further minimized by the general absence of trees, brush, or other large combustible objects within the line's route, which is over mostly agricultural land. Staff has recommended two conditions of certification to ensure implementation of the necessary preventive measures. (Ex. 2a, p. 4-11.5; *see* **TLSN-1 & TLSN-4.**)

Shock Hazards

Applicant intends to comply with the requirements of applicable regulations and standards intended to prevent hazardous or nuisance shocks to workers or the public. Staff has recommended two conditions of certification to ensure implementation of the necessary preventive measures. (Ex. 2a, p. 4-11.6; *see* **TLSN-1 & TLSN-2.**)

Electric and Magnetic Field Exposure (EMF)

Applicant has presented the details of their field reducing design and operational plan for Staff-required compliance with CPUC requirements. This plan includes

specific measures to (a) decrease the spacing between conductors thereby ensuring maximum field cancellation, (b) measures to minimize line current thereby reducing field strength and (c) measure to utilize current flow patterns for maximum field cancellation. Staff concluded that the estimated EMF exposures from the transmission lines are significantly below field levels established by states with regulatory limits for such fields. Staff recommended that Applicant's field reducing design and operational plan be approved and that Applicant verify achievement of the field strength reduction design. (Ex. 2a, p. 4-11.6/7; *see* **TLSN-3**.)

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, the Energy Commission finds as follows:

1. The proposed project's transmission lines are overhead 230 kV lines that would traverse an agricultural area.

2. SJVEC's transmission lines will be designed in accordance with the electric and magnetic field reducing guidelines applicable to PG&E's transmission service area.

3. The site and the route of the project's transmission lines are located in the City of Joaquin in an area zoned for industrial uses with relatively few residences.

4. The estimated EMF exposures from the transmission lines are significantly below field levels established by states with regulatory limits for such fields.

5. The Conditions of Certification reasonably ensure that the transmission lines 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.

We therefore conclude that with implementation of the Conditions of Certification, the project will conform with all LORS applicable 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 CPUC's GO-95, GO-52, applicable sections of Title 8, Section 2700 et seq. of the California Code of Regulations, and PG&E's EMF-reduction guidelines arising from CPUC Decision 93-11-013.

Verification: At least 30 days before starting construction of the transmission line or related structures and facilities, the project owner shall submit to the CPM a letter signed by a California registered electrical engineer affirming compliance with this requirement.

TLSN-2 The project owner shall ensure that every reasonable effort will be made during project operations to identify and correct, on a case-specific basis, any complaints of interference with radio or television reception or the functioning of any electrical devices or equipment.

The project owner shall maintain written records for a period of five years of all such complaints, together with the corrective action taken in response to each complaint.

Verification: All reports of line-related complaints shall be summarized for the project-related lines and included during the first five years of plant operation in the Annual Compliance Report.

TLSN-3 The project owner shall engage a qualified consultant or a qualified Applicant's representative to measure the strengths of the line electric and magnetic fields from the SJVEC and existing 230 kV lines and the re-routed Helm-Kerman lines before and after they are energized, with the project running at near maximum generating capacity. Measurements should be made at representative points identified as Points A, B, C, and D within and along the edges of the rights-of-way for which field strength estimates were provided.

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

TLSN-4 The project owner shall ensure that the right-of-way of the project-related lines are kept free of combustible material, as required

under the provisions of Section 4292 of the Public Resources Code and Section 1250 of Title 14 of the California Code of Regulations.

Verification: During the first five years of plant operation, the project owner shall provide a summary of inspection results and any fire prevention activities carried out along the right-of-way, and provide such summaries in the Annual Compliance Report.

TLSN-5 The project owner shall ensure that all permanent metallic objects within the right-of-way of the project-related lines are grounded according to industry standards.

Verification: At least 30 days before the line is energized, or an alternate period mutually agreed upon by the CPM and the project owner, the project owner shall transmit to the CPM a letter confirming compliance with this condition.

V. PUBLIC HEALTH AND SAFETY ASSESSMENT

SJVEC's operation will create combustion products and utilitze certain hazardous materials that could expose the general pubic and workers at the facility to potential health effects. The following sections summarize the regulatory programs, standards, protocols, and analyses that address these issues.

A. AIR QUALITY

1. Background

This section examines the potential adverse impacts of criteria air pollutant emissions resulting from project construction and operation and whether the project complies with applicable LORS related to air quality.

The SJVEC is proposed for siting in Fresno County, in the southeastern portion of the City of San Joaquin. The air quality monitoring station closest to the proposed project site is the Fresno-Drummond Street Station. There are also several other monitoring stations in Fresno, Hanford and Corcoran that are representative of area-wide ambient conditions. Additional SO_2 data from Bakersfield is required, since the Fresno-area stations stopped measuring SO_2 concentrations after 1997. All of the foregoing monitoring stations are within the SJVAPCD, as is the proposed facility. (Exs. 2a, pp. 4.1-1/10 & 55; 2b, p. 4.1-61; 4A, p. 3; & **Table 1**, below.)

The climate of the San Joaquin Valley where the SJVEC is proposed to be located is controlled by a semi-permanent subtropical high-pressure system that is located off the Pacific Ocean. In the summer, this strong high-pressure system results in clear skies, high temperatures, and low humidity. Very little precipitation occurs during the summer months because storms are blocked by the high-pressure system. Beginning in the fall, continuing through the winter,

the high pressure weakens, and moves south, allowing storm systems to move through the area. Temperature, winds, and rainfall are more variable during these months, but also stagnant conditions occur more frequently than during summer months. Weather patterns include periods of stormy weather with rain and gusty winds, clear weather that can occur after a storm, or persistent fog. The project site receives an average of seven inches of rain annually. Temperature, wind speed, and wind direction data have been collected at the Lemoore Naval Air Station (NAS). The predominant wind direction in the project area is from the north through west-northwest. The wind speeds are higher during the spring, summer, and fall. Along with the wind flow, atmospheric stability and mixing heights are important factors in the determination of pollutant dispersion. Atmospheric stability reflects the amount of atmospheric turbulence and mixing. In general, the less stable an atmosphere, the greater the turbulence, which results in more mixing and better dispersion. The mixing height, measured from the ground upward, is the height of the atmospheric layer in which convection and mechanical turbulence promote mixing. Good ventilation results from a high mixing height and at least moderate wind speeds within the mixing layer. (Exs. 2a & 2b, pp. 4.1-8.)

The U. S. Environmental Protection Agency (USEPA), California Air Resources Board (CARB), and the local air district, the San Joaquin Valley Air Pollution Control District (SJVAPCD) are the regulatory agencies with jurisdiction over the proposed SJVEC. Both USEPA and CARB have established allowable maximum ambient concentrations for the following six criteria pollutants.

1. ozone (O_3),
2. carbon monoxide (CO),
3. nitrogen dioxide (NO_2),
4. sulfur dioxide (SO_2),
5. particulate matter less than 10 and 2.5 microns in diameter, (PM_{10}), and ($PM_{2.5}$), respectively, and
6. lead (Pb). (Exs. 2a & 2b, pp. 4.1-1/10; 4A, p.3.)

The California standards are typically more stringent (protective) than federal standards. Federal and state ambient air quality standards are shown below.

AIR QUALITY Table 1

Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Standard	California Standard
Ozone (O_3)	1 Hour	0.12 ppm (235 µg/m^3)	0.09 ppm (180 µg/m^3)
	8 Hour	0.08 ppm (160 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	0.03 ppm (80 µg/m^3)	—
	24 Hour	0.14 ppm (365 µg/m^3)	0.04 ppm (105 µg/m^3)
	3 Hour	0.5 ppm (1300 µg/m^3)	—
	1 Hour	—	0.25 ppm (655 µg/m^3)
Respirable Particulate Matter (PM_{10})	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 ($PM_{2.5}$) [a]	Annual Arithmetic Mean	15 µg/m^3	—
	24 Hour	65 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 (42 µg/m^3)
Vinyl Chloride (chloroethene)	24 Hour	—	0.010 ppm (26 µg/m^3)
Visibility Reducing Particulates	1 Observation (8 hour)	—	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.

Note: a. The State of California is currently in the process of revising its annual PM_{10} ambient air quality standard and in the process of enacting $PM_{2.5}$ ambient air quality standards. The standards being proposed as of September 26, 2002, are as follows:
PM_{10} – 20 ug/m^3 (annual standard - arithmetic mean)
$PM_{2.5}$ – 12 ug/m^3 (annual standard - arithmetic mean)
Source: (Exs. 2a & 2b, pp. 4.1-8.)

The SJVEC is proposed for an area of the SJVAPCD that is designated as nonattainment for both the federal and state ozone and PM_{10} standards.[17] Summarized below are the federal and state attainment statuses of criteria pollutants for Fresno County.

AIR QUALITY Table 2[18]
Federal and State Attainment Status for Fresno County

Pollutant	**Attainment Status**	
	Federal	**State**
Ozone – One hour	Severe Nonattainment [a]	Severe Nonattainment
CO	Unclassified/Attainment [b]	Attainment
NO_2	Unclassified/Attainment [b]	Attainment
SO_2	Unclassified	Attainment
PM_{10}	Serious Nonattainment	Nonattainment
Lead	No Designation	Attainment

a. Region 9 News Release San Francisco, CA, "U.S. EPA Downgrades San Joaquin Valley Air," October 23, 2001 (Ozone).
b. Unclassified/Attainment – The attainment status for the subject pollutant is classified as either attainment or unclassified.
Source: (Exs. 2a & 2b, pp. 4.1-1/10.)

The jurisdictional regulatory bodies classify an area depending on whether or not the monitored ambient air quality data show compliance with ambient air quality standards (AAQS). Areas that comply with the AAQS are designated attainment/unclassified (where there is insufficient data) areas, and those that do not comply with the AAQS are designated areas of non-compliance (nonattainment).

[17] Also included in SJVEC's LORS review is the precursor pollutants for ozone, which are nitrogen oxides (NO_x) and volatile organic compounds (VOCs) (referred to interchangeably as precursor organic compounds (POCs) and the precursors for PM_{10}, which are NO_x, VOC, and sulfates (SO_x).

[18] **AIR QUALITY Table 2** shows that the times over which the air quality standards are measured (averaging times), range from one-hour to an annual average. The standards are read as a mass fraction, in parts per million (ppm), or as a concentration, in milligrams or micrograms of pollutant per cubic meter of air (mg/m^3 and $\mu g/m^3$). (Exs. 2a & 2b, pp. 4.1-8.)

USEPA administers the federal Clean Air Act[19] under which there are two major components of pollution control requirements for stationary sources such as the SJVEC:

- Nonattainment New Source Review (NSR); and
- Prevention of Significant Deterioration (PSD).

The entire program, including both nonattainment NSR and PSD review, is referred to as the federal NSR program and the program applies to the facility as a whole. (Exs. 2a & 2b, pp. 4.1-1/2; 4A, p.6.)

Nonattainment NSR is a permitting process for evaluation of those pollutants that violate federal ambient air quality standards. Conversely, PSD is a permitting process for evaluation of those pollutants that do not violate federal ambient air quality standards. Here, USEPA has delegated the nonattainment NSR analysis to the District so that the SJVAPCD is the regulating agency for all air quality regulations (with the exception of the federal PSD program). (Exs. 2a & 2b, pp. 4.1-3--District Rule 2201.)

Accordingly, the SJVEC is subject to SJVAPCD rules and regulations that define requirements for the entire range of construction and operating standards and permits to include such matters as:

- Best Available Control Technology (BACT) and
- Emission reduction credits (ERCs) offsets. (Exs. 2a & 2b, pp. 4.1-2/7; 4A, p. 6.)

BACT is defined as:

- the mandatory performance levels that are contained in any State Implementation Plan and that have been approved by USEPA;
- the most stringent emission limitation or control technique that has been achieved in practice for a class of source; or

[19] See 42 U.S.C. § 7401 et seq.

- any other emission limitation or control technique that the District's Air Pollution Control Officer (APCO) finds is technologically feasible and is cost effective. (Exs. 2a & 2b, pp. 4.1-4.)

BACT is required for any new or modified emission unit that results in an emissions increase of 2 lb/day, and CO emissions that exceed 550 lb/day: the following pollutants from all point sources at the proposed SJVEC are subject to the SJVAPCD's requirements for BACT:

- NO_x;
- VOC;
- CO;
- SO_2; and
- PM_{10}. *(Ibid.)*

ERC offsets are required because, if constructed, the SJVEC will exceed the following emission levels set by the SJVAPCD. The SJVAPCD therefore will require the SJVEC to provide ERCs for the following pollutants:

- NO_x–(exceeds the SJVAPCD's threshold of 10 tons/year);
- VOCs—(exceeds the SJVAPCD's threshold of 10 tons/year);
- CO–(exceeds the SJVAPCD's threshold of 550 lbs/day); and
- PM_{10}–(exceeds the SJVAPCD's threshold of 80 lbs/day). (Exs. 2a & 2b, pp. 4.1-3/4.)

Sulfur Oxides (SO_x) will not be emitted in excess of the District's threshold for ERCs of 150-lbs/day; therefore, the District will not require offsets for SO_x. In addition, ERCs provided must be adjusted according to their distance from the SJVEC. The distance ratios are as follows:

- Internal or on-site source–1 to 1;
- Within 15 miles of the same source–1.2 to 1; and
- 15 miles or more from the source–1.5 to 1. (Exs. 2a & 2b, pp. 4.1-4.)

2. USEPA's and the District's Role In the Siting Process

The USEPA will determine if the SJVEC project will conform to PSD regulations. Federal PSD requirements apply to the SJVEC because it is designated as a major source of new air pollution under guidelines provided in the federal rules that implement the Clean Air Act. The USEPA's Region IX will demonstrate SJVEC's compliance with the requirements of the federal PSD program through issuance of the PSD permit. (Exs. 2a & 2b, pp. 4.1-1/2; 4A, p. 6.)

In addition, Title V of the Clean Air Act requires states to implement and administer an operating permit program to ensure that large sources of air pollution operate in compliance with the requirements included in the Act's implementing regulations.[20] A Title V permit contains all of the requirements specified in different air quality regulations that affect an individual project; as a new major source of air pollution, the SJVEC will require a Title V permit, which the SJVAPCD will administer under District Regulation XXX. (*See* **AQ-110**.) The SJVEC is also subject to other requirements imposed by the Clean Air Act that the USEPA has delegated to the SJVAPCD, such as the:

- federal New Source Performance Standards (NSPS) for the combustion turbines;[21]
- authority to implement the "acid rain" program (**AQ-59)**; and
- Title IV program requirements, implemented through District Regulation XXXI, that will include obtaining a Title IV permit prior to operation, the installation of continuous emission monitors to monitor acid deposition precursor pollutants, and obtaining Title IV allowances for emissions of SO_x. (Exs. 2a & 2b, pp. 4.1-2.)

The USEPA reviews and approves the SJVAPCD's regulations, which are in most cases as stringent as the federal regulations. Therefore, compliance with

[20] *See* 40 CFR, Part 70.

[21] However, the NSPS regulation has pollutant emission requirements that are less stringent than those that will be required by SJVAPCD's non-attainment NSR requirements for BACT. (Exs. 2a & 2b, pp. 4.1-2.)

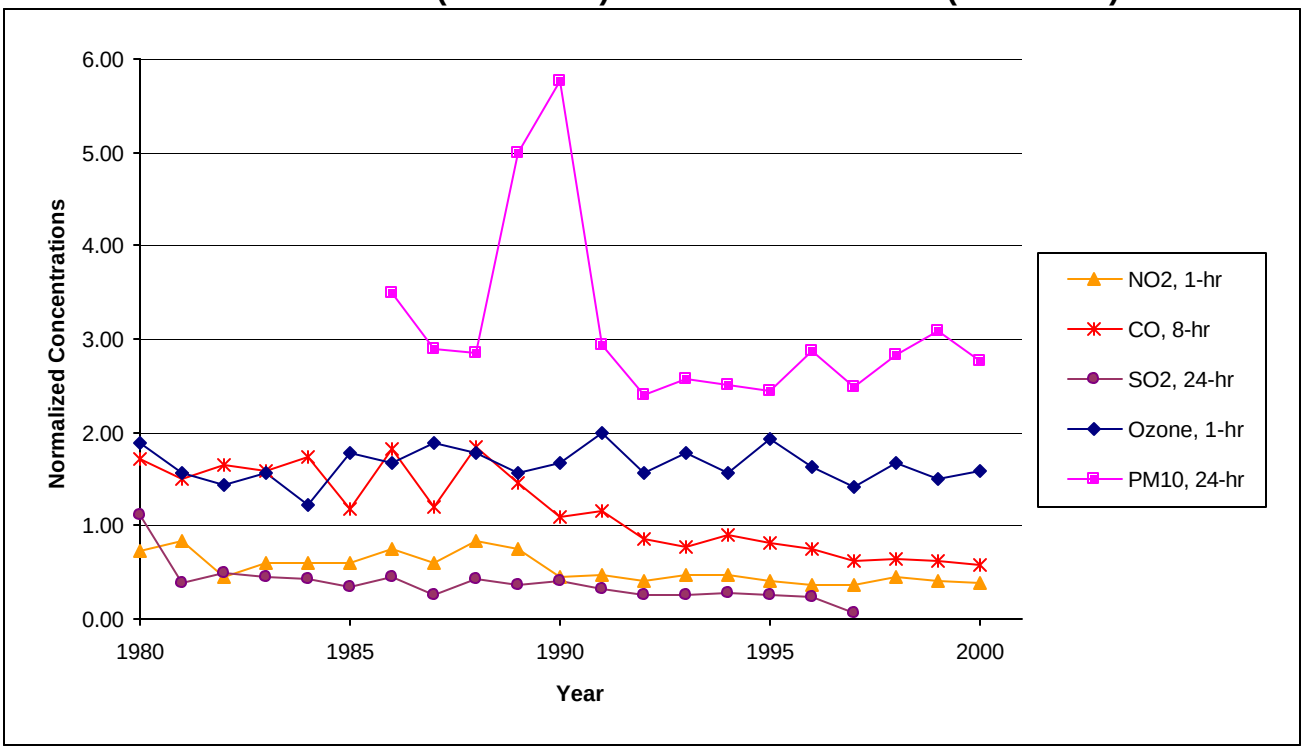
the District's rules and regulations generally will result in compliance with federal requirements.

The SJVEC project is a major stationary source subject to NSR and PSD permitting because its emissions will exceed the threshold emission limits for such a review. The requirements of the NSR and PSD programs apply to the SJVEC facility as a whole. (Exs. 2a, p. 4.1-2 & 2b, pp. 4.1-2/61; 4A, p. 6; .2/19 RT 136:8-145:25.)

3. The Area's Historical Air Quality Data

Summarized below is the historical air quality data for the project location, recorded at the Fresno Olive Street (1980-1989) and Fresno 1st Street (1990-2000) air monitoring stations for ozone, PM_{10}, NO_2, CO, SO_2 and $PM_{2.5}$. The short-term normalized concentrations are provided from 1980 to 2000. The District does not have EPA-approved attainment plans for ozone or PM_{10}; therefore, the use of major source shutdowns would not comply with pre-February 13, 2003, District NSR rules. (Exs. 2a & 2b, pp. 4.1-11 & 52.)

AIR QUALITY Figure 1
Normalized Maximum Short-Term Historical Air Pollutant Concentrations
Fresno Olive Street (1980-1989) and Fresno 1st Street (1990-2000)



A Normalized Concentration is the ratio of the highest measured concentration to the applicable most stringent air quality standard. For example, in 1999 the highest 1-hour average ozone concentration measured in Fresno was 0.135 ppm. Since the most stringent ambient air quality standard is the state standard of 0.09 ppm, the 1999 normalized concentration is 0.135/0.09 = 1.50.
Source: ((Exs. 2a & 2b, pp. 4.1-11.)

Summary and Discussion of the Evidence

1. Overview of the Issues Presented

A primary issue of dispute between the parties involves Staff's rejection of Applicant's revised construction impact emissions analysis in favor of its own analysis. In general, Applicant argues in favor of construction mitigation measures as specified in District rules and regulations, and against those measures that Staff has recommended to us. (*Cf.* Exs. 2b, pp. 4.1-34/38, 48-49; & 4A, pp. 9-16; 4A.24.)

In addition, there are four general issues in our section on Air Quality. They can be summarized as follows:

- Issues surrounding Applicant's use of pre-1990 ERCs;
- Issues surrounding Applicant's-proposed use of ERC Certificate No. S-1340-2-allocated to both SJVEC and the *Pastoria Energy Facility* project (No. 99-AFC-7) (*Pastoria*);[22]
- Issues surrounding whether it is appropriate for Staff to require Applicant to provide SO_2 ERCs when the District has not done so; and
- Issues surrounding appropriate Conditions of Certification to mitigate all project impacts. (2/19 RT 310:22-312:21; 318:17-319:9.)

Pre-1990 ERCs

Staff's Addendum, filed on December 24, 2002, recommended against project approval. Staff concluded that the project's operational emissions of nitrogen oxides (NO_X), volatile organic compounds (VOCs), sulfur dioxide (SO_2) and particulate matter less than 10 microns in diameter (PM_{10}) could be significant if left unmitigated. Specifically in the cover letter to the Addendum, Staff described "major problems" with Applicant's proposed mitigation of these operational air

[22] *See* our discussion below of **Condition AQ-C7**.

quality impacts with pre-1990 ERCs that the USEPA had found to be invalid. (Cover letter to Addendum [Ex. 2b] dated December 24, 2002.)

Relying on the USEPA's original assessment that the pre-1990 ERC's were not valid, Staff originally concluded against recommending approval for the project until and unless Applicant provided additional approved ERCs (not pre-1990) as mitigation for operational impacts. However, the dispute between Applicant/SJVAPCD on one hand and USEPA/Staff on the other over pre-1990 ERCs has largely dissipated because USEPA's position changed shortly before our evidentiary hearing on air quality when the agency published its pending approval of SJVAPCD's NSR rule in the Federal Register. USEPA's pending rule action approving SJVAPCD's NSR rules would validate the District's action in its Final Determination of Compliance (FDOC) approving Applicant's proposed pre-1990 ERCs for the SJVEC. (2/19 RT 135:11-12; 136:8-145:25; Ex. 4.A.53.[23])

The USEPA's position is that because Applicant's pre-1990 ERCs are not included in a rate of progress plan and an approved attainment plan inventory, their value is "zero."[24] Stated differently, Applicant's pre-1990 ERCs are not surplus. Accordingly, the District must draw from its bank of surplus credits to balance the amount at the time Applicant surrenders its pre-1990 ERCs. USEPA pointed out at our evidentiary hearing that this poses some risks for the District:

> [EPA witness]: There are, however, some risks I wanted to flag for everybody here. EPA has, to date, proposed, but not yet finalized, the new source review rule. EPA's intent is to finalize the rule, including the tracking system, taking into account any comments we receive. It

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[23] Vol. 68 Federal Register No. 30 dated Thursday, February 13, 2003, found at 68 F.R. 7330-7337.

[24] Currently, neither the SJVAPCD's ozone nor PM_{10} Air Quality Management Plans (AQMP) is approved by the USEPA. (Exs. 2b, p. 4.1-61; 4A.28 (Applicant's response to a December 5, 2002, letter from the USEPA to the Energy Commission recommending that we deny the SJVEC license.) The USEPA letter recommending against the SJVEC project was docketed on December 6, 2002, and is part of our administrative record. (2/19 RT 144:12-20; 338:25-339:15; 355:18-357:7.)

is possible, however, although very unlikely, that we will receive comments on this or another aspect of our proposal that would cause us to rethink our direction. It's also possible that too many nonsurplus credits would be used in any one year. For example, unless San Joaquin Valley District withdraws its approval of this project, Calpine's NOx credits would need to be entered into the tracking system with a zero value. This immediately creates the need for 300-some tons of surplus credits in the tracking system, a substantial amount. If too many nonsurplus credits were to be used in one year projects with permits would not be jeopardized for that reason. Rather, under the proposed rule, the District would be obligated to make up the shortfall for, by example, retiring other surplus credits. In the worst case the District would default to federal requirements, issuing permits only to those with surplus credits, at least until the shortfall was remedied. Thus, we think the District rules allow Calpine to rely on nonsurplus credits, and we're comfortable allowing the permit to move forward. If there is a shortfall, the District may need to reconsider the permit, or it will need to ensure that new permits do not rely on these types of nonsurplus credits in the future. Lastly, I just want to address our request of the Energy Commission, and emphasize that the dispute that I referred to earlier in my comments is between us and the District. We're not asking the Energy Commission to adjudicate that dispute. The Energy Commission doesn't have that authority, we're not asking them to do that. Rather, what we're hoping to do is reduce the risk that Calpine or other applicants will be exposed to, citizen or EPA enforcement action after construction has begun, which is an outcome that we prefer not to happen. Thank you.

[Staff counsel]: Question for you. The shortfall you described in the tracking system, if one were to be created, you suggested that could be made up by taking -- I'm not clear, but it sounded that you were describing a process where other credits that were in the system and not currently used, but were just in the bank, could be reduced to create a surplus that could then be used to make up the shortfall? Is that--do I understand that that's what you were telling us?

[USEPA witness]: Right. There are a number of mechanisms the District could use to make up for any shortfall. But sort of fundamentally starting out, the District believes, and we agree, that some of its requirements go beyond the minimum federal requirements. Such as the fact that more sources are required to provide offsets, and in some circumstances more offsets are required of a source that we would both require offsets of, but the District would require greater amount. And that should, under the scheme, prevent a shortfall from occurring. But if a shortfall were to occur the District

> could go back, for example, and take a cut off of all of the current surplus credits and use those to fund the shortfall. Or the District could pass a rule exclusively to create reductions to make up for the shortfall. And there are conceivably other mechanisms the District could use. (2/19 RT 139:2-140:25.)

Staff, pointing to comments on the USEPA's proposed rulemaking submitted to the agency by the District and the Center on Race, Poverty & the Environment (CPRE), contends that we should not recognize Applicant's pre-1990-ERCS until USEPA approval is final. (Staff Opening Brief, pp. 11-12 & Atts. A & B; 2/19 RT 295:15-298:18.)

Staff contends that the District's written comments and testimony demonstrate that it may not accept the USEPA's limiting approach to pre-1990 ERC credits. Staff expresses a particular concern that:

- the District's tracking system is new and unproven;
- the District continues to maintain that pre-1990 ERCs have intrinsic value and need not be entered into the tracking system with no value; and
- the District's written comments, which seek to refute the USEPA's assessment of SJVAPCD's accounting of pre-1990 ERCs under the Clean Air Act. (2/19 RT 316:22-317:24; Opening Brief, p. 11 & Att. A.)

With respect to CPRE's written comments to the USEPA, Staff agrees with its characterization that the USEPA's pending approval of the District's NSR rule would:

- be premature in view of the District's poor administrative history of compliance with USEPA mandates;
- violate the Clean Air Act in terms of its allowance for the use of pre-1990 ERCs;
- create and foster an environment where no mitigation would result for those developers using pre-1990 credits in the District. (2/19 RT 169:10-170:9; 278:19-279:8; Staff Opening Brief, p. 11 & Att. A.)

SO_2 Mitigation

Staff considers it necessary that Applicant mitigate secondary particulate impacts in the form of 21.8 tons of SO_2 (based on a 1:1 mitigation ratio). SO_2 emissions are a precursor to PM_{10}, which is a nonattainment pollutant at the project site area. As part of its CEQA evaluation, Staff recommends that all nonattainment pollutants and their precursors that do not require offsets by District regulation be mitigated at a minimum 1:1 ratio. The District does not require ERC offsets for the project's SO_2 emissions, and Applicant is not proposing directly to offset these emissions. Therefore, Staff has recommended to us that Applicant mitigate approximately 21.8 tons per year of SO_2. (2/19 RT 24:19-28:22; 179:9-184:15; 286:10-294:11; Ex. 2b, p. 4.1-55/57.)

According to Staff, Applicant has available SO_2 ERCs, thus SO_2 impacts can be fully mitigated by providing the required SO_2 ERCs. Further, Staff has suggested a compromise to Applicant: amend *Pastoria* by recalculating SO_2 emissions using the lower fuel sulfur levels assumed for other projects, such as that assumed for SJVEC, which would avoid the need for District required offsets. Assuming that a minimum 1:1 SO_2 offset ratio will be applied for both projects as secondary PM_{10} mitigation; Applicant would save a total of approximately 25 to 30 tons per year of SO_2 ERCs that would otherwise be required for *Pastoria*. *(Ibid.)*

Conditions of Certification

Applicant generally is in agreement with the Conditions proposed by the District, but finds objectionable, either wholly or in part, four of Staff's eight proposed Conditions. (Ex. 4.A, pp. 13-16, 33-38; Applicant Opening Brief, pp. 13-21 & Att. A, pp. A1-A10.)

Unobjectionable conditions include:

- **AQ-C1** (Applicant to provide an air quality construction mitigation manager (AQCMM);
- **AQ-C2** (provides the reporting mechanism for enforcement of **AQ-C3-C5)** However, to the extent it reaches beyond **Condition AQ-C4** (plume management), Applicant finds it objectionable;
- **AQ-C4** (plume management); and
- **AQ-C8** (project owner to submit quarterly compliance reports to the Energy Commission's Compliance Project Manager (CPM). (Exs. 2b, p. 4.1-48; 4A, pp. 13-15.)

With respect to **Conditions AQ-C1 and AQ-C 4**, the parties were able to reach consensus so the Decision we issue will reflect the consensus agreement between Applicant and Staff. **Condition AQ-C8** is a standard reporting condition, a version of which our Decisions will impose in every siting case. (2/21 RT 202:20-204-:5; Ex. 2 O, pp. 1-6.)

Conditions AQ-C3, and 5-7 Applicant finds objectionable. Staff testified that its position regarding construction emissions mitigation was that rather than seek ERCs, it was recommending in the challenged conditions "the maximum feasible mitigation that we consider necessary to deal with the impacts," in light of Staff's overall public health concerns. (2/19 RT 164:16-165:4; 311:19-312:11.)

2. <u>Objectionable Condition AQ-C3</u>

Condition AQ-C3 is the so-called "soot filter" condition that Applicant finds objectionable, for several reasons.[25] First, **Condition AQ-C3** provides for a dust control program that Applicant feels in many ways duplicates the requirements of the "very detailed provisions" of the District's fugitive dust rules. Regarding the

[25] The catalyzed diesel particulate filters are passive, self-regenerating filters that reduce particulate matter, carbon monoxide, and hydrocarbon emissions through catalytic oxidation and filtration. The degree of particulate matter reduction by using ultra low sulfur fuel and soot filters is comparable for both mitigation measures in the range of approximately 85-92 percent. We find that soot filters will reduce diesel emissions during construction and reduce any potential for significant health impacts. (Ex. 2a, p. 4.7-9.)

"soot filter" provisions of **Condition AQ-C3**, Applicant raises a federal preemption argument that the Commission recently rejected in approving Calpine's East Altamont Energy Center (01-AFC-4) project (*East Altamont*). (2/19 RT 26:19-33:17; 247:17-248:4; 268:22-269:14; Exs. 3A, p. 2; 4A, pp. 13-14; 4A.24; Applicant Opening Brief, pp. 17-21, Att. A, pp. A-1/A-9; *see* **Conditions AQ-111-117**.)

Staff points out that the use of catalyzed diesel particulate filters (soot filters) was recommended by its expert to mitigate the health risks associated with construction diesel equipment. In particular, Staff:

- identified a public health concern over the elevated asthma and particulate matter rates in Fresno and San Joaquin Counties;
- demonstrated that the elevated particulate matter rates have a direct connection to the generation of toxic air contaminants, which are harmful to public health;
- demonstrated how the District's dust-suppression rule was not designed for the type of construction pollutants that SJVEC might encounter, such as tail pipe diesel emissions and soils containing hazardous waste at the SJVEC site;
- demonstrated how its dust suppression concern carried over to Staff's recommendations in the areas of our analysis of Public Health and Waste Management. (2/19 RT 165:7/11; 166:15-167:6; 190:16-206:22; 282:21-286:9; 302:11-304:6; Ex. 4.1-48; Staff Opening Brief, pp. 8-9; Staff Reply Brief, pp. 2-3; *see* **Waste-6**.)

In view of the record taken as a whole, our resolution is to overrule Applicant's objections to **Condition AQ-C3**. In doing so, we will adopt the precise condition and the language from the *East Altamont* Commission Decision that (1) approves of Staff's dust control measures, and (2) requires, *inter alia*, soot filters on 100-hp or more engines when a determination is made by the on-site air quality manager that the device is available and practical for use.

3. Objectionable Condition AQ-C5

Condition AQ-C5, as recommended to us by Staff, would impose a requirement that Applicant implement an Ambient Air Quality Monitoring Program (AAMP) to measure PM_{10} emissions during construction activities. The AAMP would require Applicant to perform upwind and downwind monitoring of PM_{10} during project construction. Staff testified that:

- the District's own fugitive dust rules do not provide the same degree of particulate matter reductions as would **Condition AQ-C3**; and
- **Condition AQ-C5** provides the mechanism to ensure that **Condition AQ-C3** is followed as a matter of public health concerns. (2/19 RT 165:12-167:6;194:24-196:3; 227:23-229:20; Ex. 2b, p. 4.1-49; Staff Reply Brief, pp. 2-3.)

> [Staff expert] Well, AQC-5 is essentially a demonstration that the mitigation is actually effective. And without that demonstration, you know, it's basically just, the condition is just paper. The problem being that the CEC does not have the manpower to be down here every day to make sure that they're doing what they're supposed to do. The District doesn't have the manpower to be here every day to make sure they're meeting the regulation 8 rules. As a matter of fact I made a call to another applicant who has three projects going on in the District, one currently under construction and two that have completed construction. He indicated he never saw a District personnel there once during the construction interval to do any compliance on the regulation 8 rules. So, basically regulation C(5) is there for the protection of the community to make sure that fugitive dust mitigation is actually being applied, because we're not going to have eyes out here every day to make sure it's happening. But the data will show that the work is being done properly in terms of mitigation. (2/19 RT 165:14-166:13; *see also* 242:25-244:22; 304:8-20.)

Applicant noted that there is a similar requirement in the fugitive dust rules in the South Coast Air Quality Management District (SCAQMD), but that the SCAQMD requirement is triggered only when projects opt out of SCAQMD's own rules for dust control measures. Applicant argues that because the SJVAPCD does not require upwind/downwind monitoring, and the District has "a well defined and very detailed set of fugitive dust control rules," SJVEC should not have to employ

an AAMP, which includes upwind/downwind monitoring of PM_{10} during project construction. Applicant also argues that Staff's significance criterion for PM_{10} impacts at the nearest residential location is "merely the latest in a series of unsupported, continuously changing criteria…." (2/19 RT 28:1-6; 33:18-35:22; Exs. 4A, pp. 15-16; 4A.24; Applicant Opening Brief, pp. 14-17.)

Applicant correctly noted that the Energy Commission has required upwind/downwind monitoring of construction impacts in a previous siting case: the *Los Esteros Critical Energy Facility* project (01-AFC-12) (*Los Esteros)*. In *Los Esteros*, Applicant agreed to a demonstration program of upwind/downwind monitoring because the project's accelerated construction schedule produced the likelihood that:

- earthmoving activities were likely to occur around the clock for the first one to two months;
- the *Los Esteros* project would produce extensive dust moving activities during periods when there is poor dispersion;
- the foregoing factors would create rather unique circumstances, which justified the imposition of a demonstration program for upwind/downwind monitoring.

Applicant suggests here that we delete **Condition AQC-5** because the "unique factors" present in *Los Esteros* have not been demonstrated in SJVEC. (2/19 RT 33:18-35:22; 269:15-273:10; 276:19-278:18; Ex. 4A.24; Att. 2, p. 2-5; Applicant Reply Brief, pp. 20-21.)

We believe the importance of the *Los Esteros* project lies in the fact that the Energy Commission demonstrated its intent to impose a requirement for upwind/downwind monitoring of construction impacts when circumstances warranted. (Staff Reply Brief, p. 3.)

Here Staff points out the following factors that were considered in formulating and recommending to us **Condition AQC-5**:

- local PM_{10} ambient air quality conditions, which violate federal and state annual AAQS;

- peak PM_{10} concentrations predominantly occur in the fall and winter. During winter there is a high frequency of winds to the northwest (i.e. from the site towards the City of San Joaquin) and the wind speeds in this direction are generally low, which reduces dispersion potential;
- the City of San Joaquin is located within a mile of the site;
- Fresno County has one of the highest rates of diagnosed asthma in the State of California;
- Potentially significant cancer risks were found due to diesel particulate. (Ex. 20, p. 4.)

For the above reasons, notwithstanding Applicant's revised analysis, we are persuaded that the unique factors present here and detailed in our discussions above of **Conditions AQC-3 & 5** require us to impose a requirement for upwind/downwind monitoring in **Condition AQC-5**. (2/19 RT 319:10-321:15.)

4. <u>Objectionable Condition AQ-C6</u>

Condition AQ-C6, which deals with modifications to existing permits, is objectionable to Applicant, who is recommending some very minor modifications to the language that Staff recommended. Applicant's and Staff's versions of **Condition AQ-C6** are very close. Rather than engage in the minutia of reconciling minor differences in language, we again adopt the language from *East Altamont* as the appropriate resolution to the differences between the parties. (2/19 RT 26:19-33:17; *cf.* Ex. 2 O, p. 4 & 4.A, p. 36; *see* also Applicant Opening Brief, Att. A, p. A-7.)

5. <u>Objectionable Condition AQ-C7</u>

Condition AQ-C7, as recommended to us by Staff, would track the ERCs that Applicant has proposed to ensure that the identical ERCs are surrendered at the appropriate time under the District's rules. Here, SJVAPCD rules in place at the

time of the District's publication of the Authority to Construct (ATC/PDOC)[26] required only that ERCs be identified; the District did not require that identical ERCs be surrendered. (Staff Opening Brief, pp. 7-8; 2/19 RT 331:12-333:24; Exs. 4A.26/27/37, p. 40; Applicant Reply Brief, pp. 27-29 & Att. A.)

Under Staff's view, any changes to ERC allocation as identified in proposed **Condition AQ-C7** would be subject to Energy Commission approval.[27] With respect to the more immediate issue of ERC Certificate No. S-1340-2, Staff recommends that Applicant file an amendment to the Commission Decision in *Pastoria* to free the errant ERC. (2/19 RT 173:18-179:5; 298:19-302:7.)

The issue of ERC reallocation arises in the context of Staff's discovery in these proceedings of a "double accounting" of ERC Certificate No. S-1340-2, which is allocated to both SJVEC and to *Pastoria*. The FDOC notes that ERC Certificate # S-1340-2 is still registered to *Pastoria*. There is no dispute but that such a "double accounting" is improper in that an ERC may only be committed to a single project. (*Cf.* Exs. 2A, p. 105 (*Pastoria* Decision ERC allocation table) & 2C/4A.26[28] (SJVEC ERC allocation table); 2O, p.5; Staff Opening Brief, pp. 7-8.)

Staff points out that the USEPA stated a similar view with respect to any proposed interchange of ERCs in its February 13, 2003, rulemaking action to approve the District's revised NSR rules, as follows:

> [T]he new or modified source must identify the source of the emissions reduction to be used to meet the offset requirements, must provide an opportunity for review of the proposed emission reduction credits and, once the ATC is issued, cannot change the emission reduction credits

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[26] Under SJVAPCD's rules, the Authority to Construct (ATC) is the Preliminary Determination Of Compliance (PDOC). The FDOC incorporates comments on the PDOC and the FDOC represents the final District action on the ATC.

[27] Staff has indicated that it plans to recommend similar conditions in all future siting cases to track applicant's allocation of ERCs. (Staff Opening Brief, pp. 7-8.)

[28] Staff Exhibit 2C and Applicant Exhibit 4A.26 (Applicant's December 5, 2002, letter to Staff on ERC reconciliation) are identical, each party having offered it into evidence.

unless a new ATC is proposed identifying the new emission reduction credits to be relied upon. (Staff Opening Brief, p. 8 citing 68 FR 7330, 7333; Ex. 4A.53, p. 7333.)

Subsequent to February 13, 2003, the District has pledged to follow the USEPA practice, under which the SJVEC is required to:

- identify the source of the emissions reduction to be used to meet the offset requirements,
- provide an opportunity for review of the proposed ERCs, and
- surrender the identical ERC to the District unless a new ATC/PDOC is proposed identifying the new ERCs to be relied upon. *(Ibid.)*

As currently situated, Staff is recommending disapproval of the project because Applicant has already dedicated ERC Certificate No. S-1340-2 to *Pastoria*; without it, SJVEC lacks sufficient offsets to meet its offset obligations under the District's rules. Staff's position is that Applicant cannot unilaterally reallocate ERC Certificate # S-1340-2 from *Pastoria* to SJVEC, and that Applicant is required either:

- to renotice the *Pastoria* ERC package under USEPA and District rules or practices in place subsequent to February 13, 2003; or
- to renotice the SJVEC ERC package under USEPA and District rules or practices in place subsequent to February 13, 2003. (Staff Opening Brief, p. 8.)

Staff's position stated in the FSA is that the Commission requires Applicant to list ERC certificate numbers and the quantities of reductions to be surrendered prior to **licensing**. If Applicant determines to surrender different ERCs, Staff recommends that we require Applicant to submit an amendment to the CPM so that a revision to the offset package may be processed. (Ex. 2b, p. 4.1-57.)

Here, Staff's processing of an amendment would involve the District either:

- approving an amended *Pastoria* ERC package under USEPA and District rules or practices in place subsequent to February 13, 2003; or

- approving an amended SJVEC ERC package under USEPA and District rules or practices in place subsequent to February 13, 2003. (2/19 RT 279:9-281:9.)

We discuss the relative merits of the parties' position below in our discussion section.

6. USEPA

USEPA Region IX's Senior Energy Advisor Matt Haber appeared at our evidentiary hearings and offered testimony on the subject of the agency's pending approval of the District's NSR rule, as published in the Federal Register shortly before our evidentiary hearing. Mr. Haber testified that the agency's pending regulatory action approving SJVAPCD's NSR rule would validate the District's action in its FDOC approving Applicant's proposed pre-1990 ERCs for the SJVEC. (2/19 RT 135:11-12; 136:8-145:25; Ex. 4.A.53.)

Finally, on the question of identification of ERCs to be used to offset the SJVEC's operational air quality impacts, Mr. Haber testified that USEPA's view is a general departure from California's approach requiring the offsets to be achieved before a certificate is issued. USEPA's position is more liberal: the offsets must be identified and enforceable when the project is permitted. By the time project operation begins, offsets must be achieved. (2/19 RT 144:21-145:8.)

In terms of any later change to the mix of offsets, USEPA's view is that an interchange would trigger a need to go through a subsequent public process of some sort at the District level. Mr. Haber gave several reasons supporting a public process should the mix of offsets originally proposed be changed:

- for most districts, the banking rule, itself, is not part of the SIP, so any public process associated with that doesn't have the gloss of federal approval;
- there are often disputes between USEPA and the local district, or applicants as to the validity of credits. Going through a public process

> before the credits are used is really the best time from a public policy standpoint to deal with any disagreements, because at that time the project hasn't been constructed, and any defects can be corrected before significant investment has occurred. (2/19 RT 145:9-146:8.)

With respect to Staff's proposed **Condition AQC-7**, Mr. Haber testified that USEPA supports direct action by the SJVAPCD to include in its ATC during the licensing phase those ERCs that Applicant has identified and plans to surrender for the project. Absent such a condition in the SJVEC project's ATC, USEPA would support Staff's proposed **Condition AQC-7**. (2/19 RT 144:22-143:22.)

7. SJVAPCD's Final Determination of Compliance and Testimony

On September 26, 2002, SJVAPCD issued its FDOC on the SJVEC project. The FDOC concludes that the SJVEC will comply with all applicable air quality requirements and imposes certain conditions necessary to ensure compliance. David Warner, SJVAPCD's Manager of Permit Services, appeared and provided testimony at our evidentiary hearings in support of the FDOC's conclusions. (Ex. 4A.37; 2/19 RT 322:14-326:16.)[29]

On the issue of whether Applicant had identified sufficient ERCs to mitigate SJVEC's operational impacts, Mr. Warner testified that Staff had discovered a problem with ERC Certificate No. S-1340-2, which Applicant had proposed for both *Pastoria* and SJVEC. Mr. Warner confirmed that such a "double accounting" is improper in that an ERC may only be committed to a single project. He stated that Applicant had "remedied" the problem, which is an apparent reference to Applicant's letter to Mr. Warner dated December 16, 2002, explaining Applicant's unilateral ERC reallocation that had occurred subsequent to both the *Pastoria* Commission Decision and the SJVEC ATC. (2/19 RT 331:12-358:19-360:6; 4A.27.)

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[29] Following Energy Commission regulations, the conditions contained in the FDOC are incorporated into this Decision. (20, CCR § 17522.3.)

Contemporaneously with the USEPA's February 13, 2003, pending rulemaking approval of the District's NSR rule, the SJVAPCD will require applicants to identify for inclusion in the ATC those ERCs to be allocated to a project. The District will then impose a condition in the FDOC requiring applicants to surrender those identical ERCs. Should the applicant propose a new allocation after publication of the FDOC, the applicant would be required to obtain approval of the revised ERC package under the District's procedure. In short, if the District were currently engaged in the ATC for the SJVEC project, it would impose in the FDOC that which Staff is seeking to apply in **Condition AQC-7**. (2/19 RT 331:12-335:20.)

8. CEQA Guidance

The Commission not only reviews compliance with SJVAPCD rules, but also evaluates potential air quality impacts following CEQA Guidelines.[30] The Guidelines require analysis to determine whether a project will:

- conflict with or obstruct implementation of the applicable air quality plan;
- violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- result in a cumulatively considerable net increase of any criteria pollutant for which the region is non-attainment for state or federal standards;
- expose sensitive receptors to substantial pollutant concentrations; and
- create objectionable odors affecting a substantial number of people. (14 Cal. Code of Regs. § 15000 et seq., Appendix G.)

9. Staff

Staff's Ambient Ozone Analysis

In the presence of ultraviolet radiation, both NO_x and VOC go through a number of complex chemical reactions to form ozone. Ozone formation is higher in

[30] See 20 Cal. Code of Regs. §§ 1744.5, 1752.3.

spring and summer and lower in the winter. The San Joaquin Valley Air Basin (SJVAB) is classified as a severe nonattainment area for ozone; it violates both federal and state AAQS. **Table 3** below charts the best representative ambient ozone data collected from three different monitoring stations close to the project site; it shows maximum 1-hour and 8-hour ozone levels and the number of days above the state and national standards. (2/19 RT 147:22-148:14; 193:17-194:17; Exs. 2a & 2b, pp. 4.1-10/11 & Table 2; 4A, p. 8.)[31]

AIR QUALITY Table 3
Ozone Air Quality Summary, 1991-2000 (ppm)

Year	Fresno 1st Street				Fresno Drummond Street				Hanford S. Irwin Street			
	Days Above CAAQS 1-Hr	Max. 1-Hr Avg.	Days Above NAAQS 8-Hr	Max. 8-Hr Avg.	Days Above CAAQS 1-Hr	Max. 1-Hr Avg.	Days Above NAAQS 8-Hr	Max. 8-Hr Avg.	Days Above CAAQS 1-Hr	Max. 1-Hr Avg.	Days Above NAAQS 8-Hr	Max. 8-Hr Avg.
1991	76	0.180	72	0.130	44	0.150	34	0.118	---	---	---	---
1992	56	0.140	42	0.111	44	0.140	30	0.100	---	---	---	---
1993	59	0.160	54	0.120	27	0.150	17	0.107	---	---	---	---
1994	56	0.140	51	0.111	17	0.114	6	0.092	9	0.119	12	0.102
1995	65	0.173	53	0.126	20	0.120	9	0.097	2	0.096	1	0.085
1996	59	0.146	49	0.123	45	0.154	34	0.122	78	0.144	81	0.121
1997	30	0.128	23	0.107	19	0.131	11	0.099	23	0.126	26	0.106
1998	46	0.151	44	0.118	49	0.148	41	0.115	27	0.143	31	0.113
1999	53	0.135	45	0.123	38	0.132	28	0.108	28	0.140	25	0.111
2000	48	0.143	41	0.109	37	0.131	24	0.104	48	0.124	51	0.110

California Ambient Air Quality Standard (CAAQS): 1-Hr, 0.09 ppm
National Ambient Air Quality Standard (NAAQS): 1-Hr, 0.12 ppm; 8-Hr, 0.08 ppm
Source: CARB web site, http://www.arb.ca.gov/adam/, Accessed November 2001.
Source: CARB Air Quality Data CD, November 2000 (1980-1999).

Source: (Exs. 2a & 2b, pp. 4.1-12.)

Staff's Ambient PM_{10} Analysis

PM_{10} can be emitted directly or it can be formed many miles downwind from emission sources when 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, given the right meteorological conditions, can form particulate matters in the form of nitrates (NO_3), sulfates (SO_4), and

[31] Both Staff and Applicant agree that there has been a gradual, long-term reduction in peak ozone levels in the SJVAB. (Exs. 2a & 2b, pp. 4.1-11/12; 4A, p. 8.)

organic particles. These pollutants are known as secondary particulates, because they are not directly emitted but are formed through complex chemical reactions in the atmosphere. The highest PM concentrations are measured in the winter. During wintertime high PM episodes, the contribution of ground level releases to ambient PM concentrations is disproportionately high. The contribution of wood-smoke particles to the $PM_{2.5}$ concentrations may be even higher, considering that most of the wood-smoke particles are smaller than 2.5 microns. (Exs. 2a & 2b, pp. 4.1-13/14.)

PM nitrate (mainly ammonium nitrate) is formed in the atmosphere from the reaction of nitric acid and ammonia. Nitric acid in turn originates from NO_x emissions from combustion sources. The nitrate ion concentrations during the wintertime are a significant portion of the total PM_{10}, and should be an even higher contributor to particulate matter of less than 2.5 microns ($PM_{2.5}$).[32] The nitrate ion is only a portion of the PM nitrate, which can be in the form of ammonium nitrate (ammonium plus nitrate ions) and some as sodium nitrate. If the ammonium and the sodium ions associated with the nitrate ion were taken into consideration, PM nitrate contributions to the total PM would be even more significant. (Exs. 2a & 2b, pp. 4.1-13/14.)

SJVEC's project area annually experiences a number of violations of the state 24-hour PM_{10} standard. Annual average PM_{10} levels are above the state standard, except for 1998. Annual average PM_{10} levels are generally above the federal standard. The SJVAB is considered to be in serious nonattainment of both federal and state PM_{10} standards. **Table 4** below charts the best representative PM_{10} ambient data collected from three different monitoring stations close to the project site; it shows maximum daily and annual PM_{10} levels

[32] California's air quality agencies are now deploying $PM_{2.5}$ ambient air quality monitors throughout the state to register $PM_{2.5}$ USEPA AAQAPs, if needed, which are due by 2005. (Exs. 2a & 2b, pp. 4.1-14.)

and the number of days above the state or national standards. (2/19 RT 147:22-148:14; 313:22-316:8; Exs. 2a & 2b, pp. 4.1-1/10.)

Both Staff and Applicant agree that there has been in the SJVAB for the recent past decade:

- a very slight overall gradual downward trend for both maximum 24-hour PM_{10} concentrations and Annual Geometric Mean PM_{10} concentrations; and
- a very slight gradual downward trend in the number of days of violations of the state 24-hour average PM_{10} standard. (2/19 RT 150:13-151:13; Exs. 2a & 2b, pp. 4.1-14/16; 4A, p. 8.)

AIR QUALITY Table 4
PM_{10} Air Quality Summary, 1991-2000 (mg/m^3)

Year	Fresno 1st Street				Fresno Drummond Street				Hanford S. Irwin Street			
	Days * Above CAAQS	Max. Daily Avg.	Annual Geo. Mean	Annual Arith. Mean	Days * Above CAAQS	Max. Daily Avg.	Annual Geo Mean	Annual Arith. Mean	Days * Above CAAQS	Max. Daily Avg.	Annual Geo Mean	Annual Arith. Mean
1991	174	147	47.7	60.0	174	152	52.1	66.1	---	---	---	---
1992	114	120	44.0	48.8	162	116	47.5	52.1	---	---	---	---
1993	132	129	37.5	46.7	150	152	44.3	53.0	36	192	69.8	---
1994	48	125	33.8	39.0	150	127	43.2	49.7	156	116	44.3	50.1
1995	136	122	37.9	44.5	138	126	40.0	48.8	150	185	43.6	52.9
1996	57	144	33.0	37.0	84	121	33.8	39.3	105	120	34.7	40.8
1997	72	124	37.1	42.6	108	121	41.5	46.7	102	143	41.3	46.2
1998	60	141	27.1	33.7	84	132	31.2	39.3	90	146	29.8	39.2
1999	114	154	35.8	44.6	108	162	42.1	53.1	102	143	41.6	53.4
2000	66	138	33.5	40.3	114	130	39.6	42.7	102	119	41.9	49.0

California Ambient Air Quality Standard: 24-Hr, 50 µg/m^3; Annual Geometric, 30 µg/m^3
National Ambient Air Quality Standard: 24-Hr, 150 µg/m^3; Annual Arithmetic, 50 µg/m^3
Source: CARB web site, http://www.arb.ca.gov/adam/, Accessed November 2001.
Source: CARB Air Quality Data CD, November 2000 (1980-1999).

* Days above the state standard (calculated): Because PM_{10} is monitored approximately once every six days, the potential number of violation days is calculated by multiplying the actual number of days of violations by six.

Source: (Exs. 2a & 2b, pp. 4.1-1/14.)

Staff's Ambient SO_2 Analysis

Sulfur dioxide is typically emitted as a result of the combustion of a fuel containing sulfur. Fuels such as natural gas contain very little sulfur and consequently have very low SO_2 emissions when combusted. By contrast fuels high in sulfur content such as lignite (a type of coal) emit very large amounts of SO_2 when combusted. Staff's analysis demonstrate that the SJVAB is

designated attainment for all SO_2 state and federal AAQS standards. (Exs. 2a & 2b, pp. 4.1-13.)

However, the SJVEC would produce ammonia emissions at a high rate, totaling more than 400 tons per year at an emission rate of 10 ppm. Because ammonia emissions have a direct role in converting SO_x emissions to secondary PM_{10}, Staff believes it is necessary to mitigate directly the project's SO_2 emissions with emission reductions at a minimum ratio of 1:1. Staff also contends that Applicant "overstated the amount of 'excess' credits' in its proposed [ERC] package." Staff's recalculation suggests that Applicant "overstated the amount of excess credits by 66.4 tons for VOC and 11 tons for PM_{10}. (Ex. 2b, pp. 4.1-56; Staff Opening Brief, pp. 8-9; Reply Brief, p. 2 & Att. A.)

Staff's Analysis Regarding Construction

SJVEC's on-site construction activities are expected to last approximately 24 months; both on-site and off-site construction would generate air emissions from earth moving activities and construction equipment. Highest daily dust emissions will occur during the 7th month and the highest daily exhaust emissions will occur during the 16th month. Off-site construction of the natural gas pipeline and reclaimed water pipeline is expected to last 12 months. Construction of the new 230-kV transmission line interconnect is expected to last one month. (Exs. 2a & 2b, pp. 4.1-22.)

The SJVEC would include the following major elements at the project site:

- three Siemens-Westinghouse 501FD (or equivalent) combustion turbine generators with duct-fired heat recovery steam generators (HRSG) driving one steam turbine generator (STG);
- a 16-cell cooling tower using reclaimed water;
- a 370-horsepower (hp) diesel firewater pump;
- a 1,040-kilowatt (kW) natural gas-fired emergency generator;
- a 230-kilovolt (kV) switchyard;

- a deaerating surface condenser; and
- a 125,000 pound-per-hour (lb/hr) forced-draft auxiliary boiler. (Exs. 2a & 2b, pp. 4.1-2.)

The SJVEC would also include the following linear ancillary projects off the project site:

- an approximately 1,500 feet long, 230-kV electrical transmission line;
- rerouting of approximately 2,900 feet of the 70-kV sub transmission line that crosses the project site;
- an approximately 20 mile, 24-inch natural gas supply pipeline;
- a 21 mile, 27 inch reclaimed water supply pipeline;
- a 1 mile domestic water supply pipeline; and
- a 2.5 mile sanitary sewer line. (Exs. 2a & 2b, pp. 4.1-21/22.)

Staff alone undertakes for the Energy Commission an analysis of SJVEC's construction impacts; the District does not do an analysis of construction emissions or construction impacts. Staff remodeled an Applicant-provided construction emissions and modeling analysis using a combination of point sources, volume sources, and an area source. Additionally, Staff used a corrected meteorological file in its modeling analysis. (2/19 RT 151:23-164:15; 184:18-190:15; 262:7-264:13; Exs. 2b, pp. 4.1-34/38; *see* **AIR QUALITY Tables 5 & 6** below.)

Staff modeled Applicant's suggested 7 a.m. to 5 p.m. daily construction schedule, as well as an unlimited daily construction schedule to assess the potential short-term averaging period construction impacts could occur without any restrictions to the construction schedule.[33] Staff's air quality expert witness testified that the recommended construction mitigation measures were **not** based upon the 24-hour modeling, which was done to support Staff's original recommendation for

[33] Applicant objects to Staff's methodology and argues that the results, shown below in **Tables 4 and 5**, significantly overstate the SJVEC project's construction impacts. (Exs. 4A, pp. 9-12.)

limiting construction time. However, because Staff's Noise experts are recommending a similar limiting condition, a like air quality condition was not needed and thus abandoned. (2/19 RT 265:21-268:21; *see* **NOISE-8**.)

Staff did not conduct a revised construction emissions and modeling analysis based on Applicant's revised analysis that was submitted to Staff in August 2002, after the PSA's release on July 16, 2002.[34] Based upon a host of comparative evaluation factors, Staff did not consider Applicant's revised analysis to be credible. (2/19 RT 151:23-164:15; 265:21-268:21; 274:22-276:18; Ex. 2b, pp. 4.1-35/38.)

Therefore, Staff's evaluation of Applicant's original data, as submitted in the AFC, formed the basis for Staff's recommended mitigation to minimize the construction emissions, and to otherwise mitigate the construction 24-hour PM_{10} ambient air quality impacts. (2/19 RT 151:23-164:15; Ex. 2b, pp. 4.1-35/38; 4.1-46/49.)

Air Quality Table 5
SJVEC Ambient Air Quality Impact
Staff Construction ISC Modeling Results
7 am to 5 pm Construction Schedule

Pollutant	Averaging Period	Project Impact ($\mu g/m^3$)	Background ($\mu g/m^3$) [b]	Total Impact ($\mu g/m^3$)	Limiting Standard ($\mu g/m^3$)	Type of Standard	Percent of Standard
NO_2 [a]	1-Hour	317.9	161.7	**479.6**	470	CAAQS	**102**
	Annual	7.3	30.2	37.5	100	NAAQS	38
PM_{10}	24-Hour	64.9	**146**	**211**	50	CAAQS	**422**
	Annual	11.0	**41.9**	**52.9**	30	CAAQS	**176**
CO	1-Hour	217	4,370	4,587	23,000	CAAQS	20
	8-Hour	119	2,900	3,019	10,000	CAAQS	30
SO_2	1-Hour	20.0	28.8	48.8	655	CAAQS	7
	3-Hour	12.9	26.0	38.9	1,300	NAAQS	3
	24-Hour	5.1	16.5	21.6	105	CAAQS	21
	Annual	0.32	8.5	8.8	80	NAAQS	11

Note(s):a. 1-hour NO_x value was modeled using NO_x-OLM. The annual value is multiplied by the Annual NO_x Ratio Method (ARM) of 0.75. b. Background values have been adjusted per staff recommended background concentrations shown in Table 9.
Source: (Ex. 2b, pp. 4.1-37.)

[34] Applicant's supplemental air quality impact analysis was docketed on August 9, 2002. It contains modeled revised construction emission estimates and provides Applicant's view on the propriety of Staff's recommended conditions set forth in the PSA. (Ex. 4A.24.)

Air Quality Table 6
SJVEC Ambient Air Quality Impact
Staff Construction ISC Modeling Results
Unlimited Daily Construction Schedule – Short Term Impacts

Pollutant	Averaging Period	Project Impact ($\mu g/m^3$)	Background ($\mu g/m^3$) [b]	Total Impact ($\mu g/m^3$)	Limiting Standard ($\mu g/m^3$)	Type of Standard	Percent of Standard
NO_2 [a]	1-Hour	317.9	161.7	**479.6**	470	CAAQS	**102**
PM_{10}	24-Hour	184.0	**146**	**330**	50	CAAQS	**660**
CO	1-Hour	272	4,370	4,642	23,000	CAAQS	20
	8-Hour	148	2,900	3,048	10,000	CAAQS	30
SO_2	1-Hour	25.2	28.8	54.0	655	CAAQS	8
	3-Hour	16.1	26.0	42.1	1,300	NAAQS	3
	24-Hour	6.8	16.5	23.3	105	CAAQS	22

Note(s):
a. 1-hour NO_x value was modeled using OLM_ISC.
b. Background values have been adjusted per staff recommended background concentrations shown in Table 9.

Source: (Exs. 2b, pp. 4.1-37/38.)

According to Staff, **Tables 5 and 6** demonstrate that:

- the project's 1-hour NO_2 construction impacts to be less than significant and that a violation of the state 1-hour NO_2 standard is unlikely to occur;
- maximum CO and SO_2 impacts will remain well below the CAAQS and NAAQS; therefore, there are no significant construction impacts for these two pollutants;
- predicted maximum 24-hour and annual PM_{10} concentrations are potentially significant;
- increasing the construction schedule greatly increases the predicted maximum 24-hour PM_{10} concentrations;
- maximum 24-hour PM_{10} concentrations predicted to occur within the residential areas of the City of San Joaquin are over 30 ug/m^3 for an unlimited construction schedule, and over 10 ug/m^3 for a 7 am to 5 pm construction schedule;
- the more hazardous diesel equipment exhaust PM_{10} impacts were found to be over 5 ug/m^3 within the City of San Joaquin;
- annual PM_{10} construction impacts decrease very rapidly with distance and the predicted concentrations within the residential areas of the City of San Joaquin are approximately 0.25 ug/m^3; and
- maximum annual PM_{10} construction residential impact of approximately 1.5 ug/m^3 is predicted to occur at a single residential receptor located approximately 1,000 feet south of the project fence line. (Ex. 2a, pp. 4.7-37-39; 2/19 RT 264:14-20.)

Operational Emissions Estimates and Staff Recommended Mitigation

Applicant proposes to employ the following control features to minimize the emission of toxic pollutants:

- dry low NO_x (DLN) combustors;
- selective catalytic reduction (SCR), with ammonia injection;
- an oxidation catalyst;
- air inlet filter cooler;
- lube oil vent coalescer; and
- exclusive operation on pipeline quality natural gas to limit turbine emission levels. (Ex. 2b, pp. 4.1-49/50; 2/19 RT 282:6-20.)

The FDOC provides the following BACT emission limits for each CTG:

1. **NO_x:** Emissions--2.0 ppmvd at 15 percent O_2 (1-hour average, excluding startup/shutdown) and 14.27 lb/hr with no duct firing and 19.01 lb/hr with duct firing (1 hr rolling average).
2. **CO:** Emissions--4.0 ppmvd at 15 percent O_2 and 17.37 lb/hr with no duct firing and 23.14 lb/hr with duct firing (3-hr rolling average, excluding startup/shutdown).
3. **VOC:** Emissions--2.0 ppmvd at 15 percent O_2 and 3.48 lb/hr with no duct firing and 6.63 lb/hr with duct firing (3-hr rolling average, excluding startup/shutdown).
4. **PM_{10}:** Emissions--9.0 lb/hr with no duct firing and 11.5 lb/hr with duct firing.
5. **SO_2:** Emissions--1.38 lb/hr with no duct firing and 1.84 lb/hr with duct firing.
6. **NH_3:** Emission-- 10 ppmvd at 15 percent O_2 (1-hour rolling average) and 26.41 lb/hr with no duct firing and 35.19 lb/hr with duct firing. (Exs. 2a & 2b, pp. 4.1-50.)

For the auxiliary boiler, Applicant would employ low NO_x burners, SCR with ammonia injection, an oxidation catalyst and operate exclusively on pipeline quality natural gas to limit the project's emission levels to provide the following emission rates:

1. **NO_x:** Emissions --9 ppmvd at 3 percent O_2 and 1.80 lb/hr.
2. **CO:** Emissions--50 ppmvd at 3 percent O_2 and 6.20 lb/hr.

3. **VOC:** Emissions--10 ppmvd at 3 percent O_2 and 0.69 lb/hr.
4. **PM_{10}:** Emissions--3.30 lb/hr.
5. **SO_2:** Emissions--0.11 lb/hr.
6. **NH_3:** Emissions--0.74 lb/hr. (Exs. 2a & 2b, pp. 4.1-50.)

For the cooling tower, the Applicant has proposed a high efficiency drift eliminator to reduce the PM_{10} emissions from the cooling tower. The drift rate for the drift eliminator will be limited to 0.0005 percent. *(Ibid.)*

Additionally, the diesel fire pump and emergency generator must meet SJVAPCD BACT requirements, and the following emissions control technology, or emission limits, or estimated emission rates are provided:

Natural Gas Emergency IC Engines Driving Generators:

1. **NO_x:** Emissions--2.63 lb/hr, and 0.78 g/hp-hr (grams per horsepower hour).
2. **CO:** Emissions--8.43 lb/hr, and 2.5 g/hp-hr.
3. **VOC:** Emissions--1.42 lb/hr, and 0.42 g/hp-hr.
4. **PM_{10}:** Emissions--0.10 lb/hr, 0.01 lb/MMBtu, and natural gas fuel.
5. **SO_2:** Emissions--0.01 lb/hr, 0.0007 lb/MMBtu, and natural gas fuel.

Diesel Emergency IC Engines Driving Fire Pumps:

1. **NO_x:** Emissions--3.89 lb/hr, and 5.89 g/hp-hr.
2. **CO:** Emissions--2.35 lb/hr.
3. **VOC:** Emissions--0.48 lb/hr.
4. **PM_{10}:** Emissions--0.17 lb/hr, and 0.25 g/hp-hr.
5. **SO_2:** Emissions – 0.11 lb/hr.
6. **SO_2:** Fuel sulfur content limit of 0.05 percent sulfur by weight. (Ex. 2b, pp. 4.1-50/51.)

Staff's Analysis of Emission Offsets

Staff agrees with the general level of SJVEC's proposed ERCs, aside from the issues surrounding the specific offset package that's being proposed for the project. One such issue involves Staff's recommendation for additional SO_2 offsets to deal with secondary PM_{10} formation from the project. Applicant must provide emission offsets, in the form of banked ERCs, for the project's emissions of NO_x, VOC and PM_{10} under District Rule 2201. For CEQA compliance, Staff recommends that all non-attainment pollutants and their precursors that do not require offsets by District regulation be mitigated at a minimum 1:1 ratio (i.e. for SJVEC such a pollutant is SO_2). (2/19 RT 169:5/9; Ex. 2b, pp. 4.1-51.)

The SJVEC's estimated emission liabilities that require mitigation in the form of banked ERCs are set forth below in **AIR QUALITY Table 7**. Staff concluded that Applicant has demonstrated that they have purchased or have the rights to purchase ERCs in quantities that are sufficient to offset the project's NO_x, PM_{10}, and VOC emissions per District requirements. (Exs. 2a & 2b, pp. 4.1-/52 & **Tables 30-32**.)

AIR QUALITY Table 7
SJVEC Annual Emission Liability (lb/year)

	NO_x	**VOC**	**PM_{10}**	**SO_2**	**CO [b]**
Emissions [a]	**534,982**	**157,357**	**294,136**	43,646	1,667,384
Offset Threshold	20,000	20,000	29,200	54,750	200,000
District Offset Liability	514,982	137,357	264,936	---	---
Applicants Offset Proposal	514,982	137,357	264,936	---	---

Note(s):
a. Emissions from the diesel fire pump and emergency generator are exempt from requiring emissions offsets because they do not operate more than 200 hours per year for non-emergency purposes and are not used pursuant to voluntary arrangements with a power supplier to curtail power.
b. Emission offsets are not required for CO in attainment areas since the Applicant has demonstrated to the satisfaction of the Air Pollution Control Officer (APCO) that the AAQS are not violated in the areas to be affected, and such emissions will be consistent with Reasonable Further Progress, and will not cause or contribute to a violation of the AAQS.
Source: (Ex. 2b, p. 4.1-51.)

Emergency equipment that is used exclusively as emergency standby equipment for electrical power generation or any other emergency equipment as approved by the APCO that does not operate more than 200 hours per year for non-emergency purposes and is not pursuant to voluntary arrangements with a power supplier to curtail power, is exempt by District rules from providing emission offsets. With the exception of SO_2, a minimum offset ratio of greater than 1:1 is proposed for all non-attainment pollutants and their precursors. *(Ibid.)*

All air pollutant offsets provided for the project are estimated on a quarterly basis. The Applicant is proposing several sources of offsets to mitigate the project's potential emissions. Calculations of the required ERCs are based on the distance of the project from different sources of offsets. The District requires a 1.2:1 offsetting ratio for off-site ERCs within 15 miles. For areas outside of the 15 miles, ERCs must be provided at a ratio of 1.5:1. The District determines appropriate interpollutant offset ratios on a case-by-case basis. *(Ibid.)*

Staff's Analysis of Cumulative Impacts

To evaluate SJVEC's cumulative emission impacts, Staff evaluated District records to determine other sources that may cumulatively impact the site area. Staff applied the following criteria to identify other stationary emission sources located within six miles of the SJVEC site that may contribute to cumulative impacts:[35]

- Sources that have received an Authority to Construct (ATC) permit and operation began after 1999.
- Sources that have received an Authority to Construct (ATC) permit but are not yet operational; or
- Sources that have submitted complete ATC applications to the District. (Ex. 2b, pp. 4.1-57/58.)

A review of District records indicates that there are no new permitted projects or proposed projects with any non-VOC emissions potential of greater than 5 tons per year being permitted within 6 miles of the project site. These are the types of projects that would have the potential to contribute to cumulative impacts. Although there are three other known large power plant projects, including GWF's Henrietta and Hanford Peaker facilities and the Avenal Combined Cycle facility, all proposed within 40 miles of the SJVEC, no significant overlap of the emission plumes from these widely spaced projects would be expected. Therefore, no cumulative modeling analysis was required and no significant cumulative impacts are expected as a result of this project in combination with other known projects. (Ex. 2b, pp. 4.1-58.)

10. Applicant

Applicant objects to Staff's methodology and argues that the results, shown above in **Tables 5 and 6**, significantly overstate the SJVEC project's construction

[35] Emissions from existing projects operating prior to and during 1999 are reflected in the background ambient air quality data. Therefore, it was not necessary to include them in the cumulative impact analysis. (Exs. 2b, pp. 4.1-58.)

impacts. In rejecting Applicant's construction impact analysis in favor of its own, Applicant argues that Staff improperly:

- modified meteorological data inconsistent with EPA guidelines;
- changed the way in which sources were characterized
- assumed without technical justification that construction could occur up to 24 hours per day.

In doing so, Applicant argues that Staff has substantially overstated the project's emissions impacts during construction as demonstrated below in **AIR QUALITY Table 8** (Exs. 4A, pp. 9-12; 4A.24; 2/19 RT 24:19-28:22.)

AIR QUALITY Table 8
Comparison of Applicant and CEC Staff Construction Impacts

Pollutant	**Averaging Period**	**Applicant's Results**	**CEC Staff's Results**	**CEC Staff Overstatement**
NO2	1-hour Annual	142.9 15.6	317.9 7.3	122% -
PM_{10}	24-hour Annual	54.4 5.0	184.0 11.0	118% 414%
CO	1-hour 8-hour	307.5 117.0	272 148.0	35% 29%
SO_2	1-hour 24-hour Annual	18.1 3.4 0.6	28.8 16.5 0.3	113% 115% 133%

Source: (Ex. 4A.10, p. 10.)

In summary, Applicant argues that its revised estimate of construction impacts demonstrates that:

- the SJVEC project's impacts are not worse than those for other projects approved by the Commission and, hence, do not warrant significantly different mitigation measures than those that have been previously adopted;
- maximum 24-hour average PM_{10} impacts are less than 10 µg/m3 within the residential portion of the town of San Joaquin;
- maximum 24-hour average diesel combustion PM_{10} impacts are less than 5 µg/m3 within the residential portion of the town of San Joaquin;
- the foregoing impacts, as well as all other impacts related to project construction, are mitigated to a less-than-significant level in conjunction with the Applicant's proposed mitigation measures. (Ex. 4A, p.12.)

Summary of Applicant's Pre-1990 ERCs Contentions

Applicant argues that the SJVEC project has identified and obtained emission reduction credits to fully offset and mitigate and potential regional air quality impact. (2/19 RT 220:17-221:10; Ex. 4A, pp. 30-33; Applicant Opening Brief, p. 8.)

Summary of Applicant's Contentions on SO_2 Mitigation

Applicant contends that "small amounts of SO_2 emissions" from the project are mitigated by excess mitigation to be provided to the District to offset SJVEC's PM_{10} emissions. (Ex. 4A, pp. 30-33; 2/19 RT 36:2-37:13; 286:10-294:11.)

Summary of Applicant's Contentions on Conditions of Certification

With respect to Staff's recommended **Conditions AQC-3, 5-7**, which Applicant finds objectionable, we have stated our belief above that the conditions are appropriate based under the factual scenario presented and our recent precedent. We will discuss **Condition AQ-C7** in more detail since it is a matter of first impression.

Regarding **Condition AQC-7**, Applicant asserts that:

- Staff is seeking an improper attempt at independent review of the validity of the proffered ERCs, because
- Staff's authority is confined by statute and only USEPA and CARB have SJVAPCD oversight. (Ex 4A.52; Applicant Opening Brief, pp. 12-13 & Att. A.; Applicant Reply Brief, pp. 7-12; Pub. Res. Code § 25523 (d) (2).)

In relevant part, the Warren-Alquist Act provides that:

> The commission may not find that the proposed facility conforms with applicable air quality standards pursuant to paragraph (1) unless ***[option 1]*** the applicable air pollution control district or air quality management district certifies, prior to the licensing of the project by the commission, that complete emissions offsets for the proposed

> facility have been identified and will be obtained by the applicant within the time required by the district's rules or ***[option 2]*** unless the applicable air pollution control district or air quality management district certifies that the applicant requires emissions offsets to be obtained prior to the commencement of operation consistent with Section 42314.3 of the Health and Safety Code and prior to commencement of the operation of the proposed facility. The commission shall require as a condition of certification that the applicant obtain any required emission offsets within the time required by the applicable district rules, consistent with any applicable federal and state laws and regulations, and prior to the commencement of the operation of the proposed facility. (Pub. Res. Code § 25523 (d) (2); inserts provided.)

Applicant asserts that each of the conditions precedent has occurred under **option 1** so that:

> once these prerequisites have been satisfied, PRC 25523(d) (2) imposes on the Commission simply a requirement to ensure that offsets are obtained within the time frames required by the applicable district rules. To implement the requirement of the provision, Applicant's proposed **Condition AQC-7** would simply track the language of the statute. (Ex. 4A.52.)

It is clear to us that Applicant is relying on the provisions of state law, in particular, that the SJVAPCD has given its guarded approval for the use of ERC Certificate No. S-1340-2 in the FDOC. (Applicant Opening Brief, p. 9.)

We think that Applicant's view is too conservative. On its face, the applicable state law provision requires consistency with **BOTH** applicable federal and state laws and regulations.

> The commission shall require as a condition of certification that the applicant obtain any required emission offsets within the time required by the applicable district rules, **consistent with any applicable federal and state laws and regulations, and prior to the commencement of the operation of the proposed facility.** (Pub. Res. Code § 25523 (d) (2); *emphasis added*.)

Because federal rules require that Applicant identify and surrender the identical ERCs, and ERC Certificate No. S-1340-2 is already dedicated to *Pastoria*, it is no

longer available for use here. Federal rules dictate that Applicant cannot unilaterally change ERC Certificate No. S-1340-2 from *Pastoria* to SJVEC, unless a new ATC is proposed in *Pastoria* identifying the new emission reduction credit(s) to be relied upon.

COMMITTEE DISCUSSION

We accept Staff's methodology and modifications to Applicant's data on construction impacts. We find that Staff's approach was objective and comprehensive and we accept Staff's explanation that the data Applicant supplied in its revised construction impact analysis simply was not credible.

Pre-1990 ERCs

As the USEPA witness testified, the dispute over the District's accounting for pre-1990 ERC's is outside the Energy Commission's jurisdiction. The issue presents complicated questions under federal law and the USEPA alone is responsible to ensure appropriate administration of the Clean Air Act. We will follow the guidance the agency provides.

To date, the USEPA has given its limited approval of the District's use of pre-1990 ERCs in a federal rulemaking action. Although not final, we accept the guidance and we provide for the contingency that the USEPA's action is not final. In this regard our record demonstrates some lack of harmony between the USEPA and the District that extends back more than a decade. We are mindful of this lack of accord between the federal and state agency on the appropriate use and accounting of pre-1990 ERCs in framing our Decision here. This is especially true because our own Staff has noted this tension and indeed has expressed some concern over whether the District will fulfill its USEPA imposed obligations.

We believe that should the USEPA in the final analysis reverse its course and disapprove of the District's and Calpine's use of pre-1990 ERCS, a serious problem arises within our jurisdiction. Under state law, we must ensure that all air quality impacts are mitigated over the life of the project. Without pre-1990 ERCs, SJVEC's is unable to fulfill that requirement as Staff and CPRE have noted.

Accordingly, to ensure CEQA compliance, we are imposing a new condition of certification: **Condition AQ-C9**. It is in essence a requirement that the project owner provide to the Energy Commission's Compliance Project Manager (CPM) quarterly reports on the District's tracking system to the USEPA that accounts for all pre-1990 ERCs that the project owner or predecessor surrenders to the District to mitigate air quality impacts for operation of the SJVEC project. Should USEPA ultimately reject Applicant's use of pre-1990 credits, the project owner will have to return to us for an amendment that demonstrates a new offset package that meets USEPA requirements. We believe that **AQ-C9** provides an appropriate mechanism for us to ensure that all the identified operational air quality impacts will be mitigated to less than substantial.

SO_2 Mitigation

Staff considers it necessary that Applicant mitigate secondary particulate impacts in the form of 21.8 tons of SO_2 (based on a 1:1 mitigation ratio). Staff's air quality expert witness testified that:

- the Energy Commission's Tracy Peaker Project applicant mitigated SO_2 impacts (contribution to secondary PM_{10} formation) on a 1.5 to 1 basis;
- adding the SJVEC project's ammonia emissions, which are not being otherwise offset, to the contribution of secondary PM_{10} formation would create a net positive 242.5 tons of PM_{10} precursors that are not offset;
- Applicant could effectuate the Staff-recommended SO_2 mitigation and even accrue a net savings of SO_2 ERCs, without having to purchase any additional ERCs, simply by amending *Pastoria* to be consistent with other District projects. (2/19 RT 179:6-184:15; 268:22-269:16; 281:10-282:5.)

We adopt this approach as reasonable.

In addition, Staff pointed out in its reply papers "overstatements" in Applicant's accounting for excess credits sufficient to offset SO_2 emissions. Any overstatement aside, we feel that there is sufficient evidence of record to support Staff's recommendation for additional SO_2 mitigation. In particular, the SJVEC project's 415 tons of unmitigated ammonia emissions (another PM_{10} precursor) and the area's serious PM_{10} nonattainment status convinces us of the need to require the SO_2 mitigation. We also take into account that Applicant may achieve the desired result at very little cost. (Staff Reply Brief, p. 2 & Att. A.)

Conditions of Certification

We have several issues to address on the matter of conditions of certification that have been recommended to us by Staff, but which Applicant finds objectionable. With respect to **Conditions AQ-C3** (dust suppression and soot filters) & **AQ-C6** (permit modifications), we have resolved the dispute by imposing the like conditions from the Commission's recent *East Altamont* Decision as the most appropriate way to address the issues.

In **AQ-C5**, Staff has recommended that we require Applicant to implement an Ambient Air Quality Monitoring Program to measure PM_{10} emissions during construction activities. Such a condition is not unprecedented, and we believe it is warranted in light of the evidence Staff presented on public health concerns in the region proposed for licensing the facility.

Staff's recommendation in **Condition AQ-C7** for the Energy Commission to track ERCs identified by the project owner to ensure that the identical ERCs are surrendered to the District when required under District rules appears to be a matter of first impression in our siting cases. Here, the SJVAPCD requires the ERCs to be identified prior to its issuing an Authority to Construct and to be

surrendered prior to Applicant commencing project operations. Our issue arises in the following context:

What occurs when Applicant identifies an ERC to the District for surrender in a current project, but previously has committed it to another project? May Applicant at its own discretion decide how to appropriate its ERCs when its bank is sufficient, or is Energy Commission/District approval needed through a tracking mechanism imposed by a condition of certification? We find that Applicant has no such discretion under either USEPA or Energy Commission practice, which requires some official notice procedure to affect the interchange. Based upon Staff's comments at the Committee Conference, we will follow recent precedent and allow for a tracking system so that there is absolute certainly regarding the exchange of ERCs. (12/23/03 RT 31:13-37:8.)

Staff also believes that we should deny the license based on the "double accounting" alone. We again disagree because we find this conclusion harsh. We recognize the serious breach that Applicant causes to the prevailing rules that require mitigation for all air quality impacts are to be provided in a forum subject to public scrutiny. While serious, such an error may be appropriately remedied short of denying the license precisely because Staff was vigilant in discovering the error at this relatively early stage.

Accordingly, we will require in **Condition AQ-C7** that Applicant correct the "double accounting" error in one of two ways. Applicant will file an amendment with the CPM and the District, to affect a change to the *Pastoria* ERC offset package that will free ERC Certificate No. S-1340-2 for SJVEC's use. Alternatively, Applicant will file simultaneously with the District and the Energy Commission an amended ERC offset package for SJVEC.

FINDINGS AND CONCLUSIONS

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

1. The SJVEC is located in Fresno County, in the southeastern portion of the City of San Joaquin, under the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD).

2. The SJVUAPCD collects meteorological data near the project site that are representative of the project area's meteorology, and are appropriate to use for air quality dispersion modeling analysis for the SJVEC project.

3. Construction activities for the SJVEC, both on-site and off-site, would generate air emissions from earth moving activities and construction equipment.

4. Staff alone undertakes for the Energy Commission an analysis of SJVEC's construction impacts; the District does not do an analysis of construction emissions or construction impacts.

5. Staff's recommended construction mitigation measures are based upon Applicant's suggested 7 a.m. to 5 p.m. daily construction schedule.

6. Ambient Air Quality Standards (AAQS) have been established for six air contaminants identified as criteria air pollutants, including Sulfur Dioxide (SO_2), Carbon Monoxide (CO), Ozone (O_3), Nitrogen Dioxide (NO_2), Lead (Pb) and particulate matter (PM) less than 10 microns and 2.5 microns respectively.

7. Maximum CO and SO_2 impacts will remain well below the CAAQS and NAAQS; therefore, there are no significant construction impacts for these two pollutants.

8. The proposed site for the SJVEC project is classified as a severe nonattainment area for ozone, and a serious nonattainment area for both federal and state PM_{10} standards.

9. For CEQA compliance, Staff recommends that all non-attainment pollutants and their precursors that do not require offsets by District regulation be mitigated at a minimum 1:1 ratio (i.e. for SJVEC such a pollutant is SO_2).

10 The SJVEC project as proposed is a major stationary source subject to the SJVAPCD's non-attainment NSR permitting rules and USEPA's PSD

permitting rules because its emissions will exceed the threshold emission limits for such a review.

11. On September 26, 2002, the SJVAPCD issued its FDOC on the SJVEC project. The FDOC concludes that the SJVEC, as conditioned, will comply with all applicable non-attainment NSR air quality requirements.

12. The USEPA's regulatory action approving SJVAPCD's non-attainment New Source Review rule would validate the District's action in its Final Determination of Compliance (FDOC) approving Applicant's proposed pre-1990 ERCs for the SJVEC.

13. The USEPA's Region IX will demonstrate SJVEC's compliance with the requirements of the federal PSD program through issuance of the PSD permit.

14. The SJVEC will require both Title IV and Title V operating permits under the federal Clean Air Act, which the SJVAPCD will implement under District Regulation XXXI, and XXX, respectively Title IV program requirements, implemented through District Regulation XXXI,.

15. The USEPA reviews and approves the SJVAPCD's regulations, which are, at a minimum, as stringent as the federal regulations. Therefore, compliance with the District's rules and regulations will result in compliance with federal requirements.

16. The District does not require ERC offsets for the project's SO_2 emissions, and Applicant is not proposing directly to offset these emissions.

17 Currently, neither the SJVAPCD's ozone (out of date) nor PM_{10} AQMPs are approved by the USEPA.

18. SJVEC has the potential to contribute significantly to existing violations of ozone and PM_{10} standards in the SJVAPCD.

19. The SJVEC will use BACT to control emissions of NO_x, CO, SO_2, PM_{10}, and VOCs.

20. Applicant has identified all required offsets to mitigate fully the project in accordance with SJVAPCD's regulatory rules and requirements.

21. Applicant applied a "double accounting" of ERC Certificate No. S-1340-2-- allocated in both SJVEC and *Pastoria*. Such a "double accounting" allocation is improper in that an ERC may only be committed to a single project.

22. Contemporaneously with the USEPA's February 13, 2003, pending rulemaking approval of the District's NSR rule, the SJVAPCD will impose a condition in the FDOC requiring applicants to surrender identical ERCs. Should applicant propose an ERC exchange, the District's original noticing procedure would have to be duplicated.

23. USEPA rules in place prior to February 13, 2003, require new sources such as the SJVEC: (1) to identify an ERCs source, (2) provide an opportunity for its public review/comment on the PDOC, and (3) to surrender the identical ERC to the District, unless a new public action is proposed identifying the new ERCs to be relied upon.

24. On its face, Pub. Res. Code § 25523 (d) (2), the applicable state law provision, requires consistency with **BOTH** applicable federal and state laws and regulations.

25. Because federal rules require that Applicant identify and surrender identical ERCs, and ERC Certificate No. S-1340-2 is already dedicated to *Pastoria*, it is no longer available for use here in SJVEC. Federal rules dictate that Applicant cannot unilaterally change ERC Certificate No. S-1340-2 from *Pastoria* to SJVEC, unless a new ATC is proposed in *Pastoria* identifying the new emission reduction credits to be relied upon.

26. No cumulative impacts are expected as a result of this project in combination with other known projects.

27. Applicant has carried its burden of proof to demonstrate that, with implementation of the Conditions of Certification specified below, the SJVEC 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.

CONDITIONS OF CERTIFICATION

AQ-C1 The project owner shall fund all expenses for an on-site air quality construction mitigation manager (AQCMM) who shall be responsible for maintaining compliance with conditions **AQ-C2** through **AQ-C4** for the entire project site and linear facility construction. The on-site AQCMM may delegate responsibilities identified in Conditions **AQ-C1** through **AQ-C4** to one or more air quality construction mitigation monitors. The on-site AQCMM shall have full access to areas of construction of the project site and linear facilities, and shall have the authority to appeal to the CPM to have the CPM stop any or all construction activities as warranted by applicable construction mitigation conditions. The on-site AQCMM, and any air quality construction mitigation monitors

responsible for compliance with the requirements of **AQ-C3**, **AQ-C4** and District Regulation VIII, shall have a current certification by the California Air Resources Board for Visible Emission Evaluation prior to the commencement of ground disturbance. The AQCMM may have responsibilities in addition to those described in this condition. The on-site AQCMM shall not be terminated without written consent of the CPM.

Verification: At least 60 days prior to the start of ground disturbance, the project owner shall submit to the CPM, for approval, the name, current ARB Visible Emission Evaluation certificate, and contact information for the on-site AQCMM and air quality construction mitigation monitors.

AQ-C2 The project owner shall provide a construction mitigation plan (CMP), for approval, which shows the steps that will be taken, and reporting requirements, to ensure compliance with conditions **AQ-C3** and **AQ-C4**.

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

AQ-C3 The on-site AQCMM shall submit to the CPM, in the monthly compliance report (MCR), a construction mitigation report that demonstrates compliance with the following mitigation measures:

a. All unpaved roads and disturbed areas in the project and linear construction sites shall be watered until sufficiently wet. The frequency of watering can be reduced or eliminated during periods of precipitation.

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

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

d. All vehicle tires shall be washed or cleaned free of dirt prior to entering paved roadways.

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

f. All entrances to the construction site shall be treated with dust soil stabilization compounds.

g. No construction vehicles can enter the construction site unless through the treated entrance roadways.

h. Construction areas adjacent to any paved roadway shall be provided with sandbags to prevent run-off to the roadway.

i. All paved roads within the construction site shall be swept twice daily when construction activity occurs.

j. At least the first 500 feet of any public roadway exiting from the construction site shall be swept twice daily on days when construction activity occurs, and twice daily on any other day when dirt or runoff from the construction site is visible on the public roadways.

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

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

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

n. **Diesel Fired Engines.**

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

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

(3) All large construction diesel engines, which have a rating of 50 hp or more, shall meet, at a minimum, the Tier 1 ARB/EPA certified standards for off-road equipment unless certified by the on-site AQCMM that a certified engine is not available for a particular item of equipment. In the event a Tier 1 ARB/EPA certified engine is not available for any off-road engine larger than 50 hp, that engine shall be equipped with a catalyzed diesel particulate filter (soot filter), unless certified by engine manufacturers or the on-site AQCMM that the use of such soot filters is not practical for specific engine types.

- The Tier 1 diesel engine is not available. For purposes of this condition, “not available” means that a Tier 1 diesel engine certified by either CARB or EPA is: (i) not in existence at any location for use by the project owner at or near the time project construction commences; (ii) in existence but the construction equipment is intended to be on-site for ten (10) days or less or (iii) not available for a particular piece of equipment.
- Despite the project owner’s best efforts, use of the soot filter is not practical. For the purposes of this condition, “not practical” means any of the following: (i) the use of the soot filter is excessively reducing normal availability of the construction equipment due to increased downtime for maintenance and/or reduced power output due to an excessive increase in backpressure; (ii) the soot filter is causing or is reasonably expected to cause significant engine damage; (iii) the soot filter is causing or is reasonably expected to cause a significant risk to workers or the public; (iv) the construction equipment is intended to be on-site for ten (10) days or less or (v) other good cause approved by the CPM.

o. Any conflict between mitigation measures (a) through (m) and District Rules 8021 through 8081 will be identified in the CMP. In the event such a conflict precludes compliance with both the CEC and District requirements, not including District exemption and applicability thresholds, which reduce or eliminate fugitive dust control requirements, the provisions of District rules shall govern.

p. Observations of visual dust plumes, and/or a differential in the downwind minus upwind PM10 instrument results of 5-ug/m3 or more would indicate that the existing mitigation measures are not resulting in effective mitigation. The CMM shall implement the following procedures for additional mitigation measures if the CMM determines that the existing mitigation measures are not resulting in effective mitigation:

Step One--The CMM shall direct more aggressive application of the existing mitigation methods within 15 minutes of making such a determination.

Step Two--The CMM shall direct implementation of additional methods of dust suppression if Step One fails to result in adequate mitigation within 30 minutes of the original determination.

Step Three--The CMM shall direct a temporary shutdown of the source of the emissions if Step Two fails to result in adequate mitigation within one hour of the original determination. The activity shall not be restarted until the implemented dust control mitigation is effective or, due to changed conditions, unnecessary. The owner/operator may appeal to the CPM any directive from the CMM to shutdown a source, provided that the shutdown shall go into effect within one hour of the original determination unless overruled by the CPM before that time.

Verification: In the MCR, the project owner shall provide the CPM a copy of the construction mitigation report and all diesel fuel purchase records, including quantity purchased, which clearly demonstrates compliance with condition **AQ-C3**.

AQ-C4 No construction activities are allowed to cause visible emissions at or beyond the project site fenced property boundary. No construction activities are allowed to cause visible plumes that exceed 20 percent opacity at any location on the construction site. No construction activities are allowed to cause any visible plume in excess of 200 feet beyond the centerline of the construction of linear facilities, or cause visible plumes to occur within 100 feet upwind of any occupied structures located outside the construction area.

Verification: The on-site AQCMM shall conduct a visible emission evaluation at the property boundary, or 200 feet from the center of construction activities at the linear facility, or adjacent to occupied structures, each time he/she sees excessive fugitive dust from the construction or linear facility site. The records of the visible emission evaluations shall be maintained at the construction site and shall be provided to the CPM on the monthly construction report.

AQ-C5 The project owner shall ensure that the AQCMM prepares and directs implementation of an Ambient Air Monitoring Program (AAMP) to measure PM_{10} emissions during excavation, earthmoving, and grading activities. The project owner/operator shall submit the AAMP to the CPM for review and approval. The AAMP shall include, at a minimum, the following:

a. The use of real-time simultaneous upwind and downwind PM_{10} monitoring instruments;

b. A description of the data to be collected;

c. A description of how the data collected will be used to assess the effectiveness of the mitigation measures implemented under the CMP, including assessing the potential need for monitoring multiple activities on site simultaneously.

Verification: The AAMP shall be included as part of the CMP required by Condition of Certification **AQ-C2**. Monitoring records, including monitoring data from all upwind and downwind monitors, hourly wind speed and wind direction, and records of dust suppression measures implemented, shall be maintained on-site throughout construction and shall be made available to the CPM upon request. A summary of the monitoring records and the dust suppression activities shall be included in each AAMP submittal. Any changes to the AAMP or associated protocols require approval from the CPM.

AQ-C6 The project owner shall submit to the CPM for review and approval any substantive modification proposed by the project owner to any project air permit. The project owner shall submit to the CPM any modification to any permit proposed by the SJVAPCD or the USEPA, and any revised permit issued by the SJVAPCD or the USEPA for the project.

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

AQ-C7 The project owner shall remedy within 180 days of the Commission Decision the "double accounting" error Staff has identified. Applicant will file an amendment simultaneously with the CPM and the District, to affect a change to the *Pastoria* ERC offset package that will free ERC Certificate No. S-1340-2 for SJVEC's use. Alternatively, Applicant will file an amended ERC offset package for SJVEC. Any amended ERC offset package will be filed simultaneously with the District and the CPM.

Verification: Within 180 days of the Commission Decision, Applicant will file a letter with the CPM identifying which course of action was taken and demonstrating that the District is in accord with the action taken.

AQ-C8 The project owner shall submit to the CPM and APCO Quarterly Compliance Reports, no later than 30 days following the end of each calendar quarter, that include operational and emissions information as necessary to demonstrate compliance with Conditions **AQ-1** through **AQ-117**. The Quarterly Operational Report will specifically note or highlight incidences of noncompliance.

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

AQ-C9 The project owner shall submit to the CPM a copy of a Tracking System Report prepared by the District. The Tracking System Report shall describe the status of the District's accounting, under the USEPA's pending rulemaking action of February 13, 2003 to approve the District's NSR rules, of pre-1990 ERCs surrendered by the project owner or any predecessor for the SJVEC project. Should USEPA ultimately reject the project owner's use of pre-1990 credits, the project owner will file with the CPM an amendment containing a new offset package that meets USEPA requirements, and remedies the ERC shortfall.

Verifications:

1. The project owner shall submit the Tracking System Report to the CPM no later than 30 days following its release by the District.

2. The project owner shall notify the CPM within seven days of any written notice of a USEPA determination that the use of pre-1990 ERCs surrendered for the SJVEC project has been disapproved. Within 60 days of receiving that notice, the project owner shall submit a request for an amendment that includes a new ERC package, which meets USEPA requirements and remedies the ERC shortfall.

AQ-C10 ERC Certificate Numbers S-1340-2, S-1280-2, N-272-2, and S-1554-2 shall be used to supply the required **NO_X** offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. The certificates identified in this condition shall be surrendered only after demonstrating compliance with Conditions **AQ-C7** and **AQ-C9**.

Verification: At least 60 days prior to commencing turbine first fire, the project owner shall surrender the identified ERC certificates and in the amounts shown in **AQ-105** to the District and provide documentation of that surrender to the CPM. Changes to the offsetting proposal must be provided to the District and CPM for review, public noticing, and approval.

AQ-C11 ERC Certificate Number C-348-1, N-303-1, and S-1665-1 shall be used to supply the required **VOC** offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. The certificates identified in this condition shall be surrendered only after demonstrating compliance with Conditions **AQ-C7** and **AQ-C9**.

Verification: At least 60 days prior to commencing turbine first fire, the project owner shall surrender the identified ERC certificates and in the amounts shown in **AQ-105** to the District and provide documentation of that surrender to the CPM. Changes to the offsetting proposal must be provided to the District and CPM for review, public noticing, and approval.

AQ-C12 ERC Certificate Numbers C-347-4, S-1577-4, S-1578-4, S-1666-4, S-1682-4, S-1683-4, S-1684-4, S-1685-4, S-1686-4, S-1687-4, S-1688-4, S-1689-4, S-1690-4, S-1691-4, S-1692-4, S-1693-4, N-297-4, C-447-4, C-448-4, C-449-4 and N-208-4 shall be used to supply the required **PM_{10}** offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct.

Verification: At least 60 days prior to commencing turbine first fire, the project owner shall surrender the identified ERC certificates and in the amounts shown in **AQ-105** to the District and provide documentation of that surrender to the CPM. Changes to the offsetting proposal must be provided to the District and CPM for review, public noticing, and approval.

AQ-C13 The project owner shall surrender SO_2 ERC certificates from the SJVAPCD ERC bank in the amount of no less than 10,908 pounds per quarter.

Verification: At least 60 days prior to commencing turbine first fire, the project owner shall surrender the ERC certificates in the required amounts to the District and provide documentation of that surrender to the CPM.

DISTRICT'S FINAL DETERMINATION OF COMPLIANCE CONDITIONS

SJVACPD Permit No. UNIT C-3959-1-0: 180 MW NOMINALLY RATED COMBINED-CYCLE POWER GENERATING SYSTEM #1 CONSISTING OF A SIEMENS-WESTINGHOUSE MODEL 501FD OR EQUIVALENT NATURAL GAS FIRED COMBUSTION TURBINE GENERATOR WITH DRY LOW NOX COMBUSTOR, A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM, AN OXIDATION CATALYST, HEAT RECOVERY STEAM GENERATOR #1 (HRSG) WITH A 746 MMBTU/HR DUCT BURNER AND A 570 MW NOMINALLY RATED STEAM TURBINE SHARED WITH C-3959-2 AND C-3959-3.

SJVACPD Permit No. UNIT C-3959-2-0: 180 MW NOMINALLY RATED COMBINED-CYCLE POWER GENERATING SYSTEM #2 CONSISTING OF A SIEMENS-WESTINGHOUSE MODEL 501FD OR EQUIVALENT NATURAL GAS FIRED COMBUSTION TURBINE GENERATOR WITH DRY LOW NOX COMBUSTOR, A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM, AN OXIDATION CATALYST, HEAT RECOVERY STEAM GENERATOR #2 (HRSG) WITH A 746 MMBTU/HR DUCT BURNER AND A 570 MW NOMINALLY RATED STEAM TURBINE SHARED WITH C-3959-1 AND C-3959-3.

SJVACPD Permit No. UNIT C-3959-3-0: 180 MW NOMINALLY RATED COMBINED-CYCLE POWER GENERATING SYSTEM #3 CONSISTING OF A SIEMENS-WESTINGHOUSE MODEL 501FD OR EQUIVALENT NATURAL GAS FIRED COMBUSTION TURBINE GENERATOR WITH DRY LOW NOX COMBUSTOR, A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM, AN OXIDATION CATALYST, HEAT RECOVERY STEAM GENERATOR #3 (HRSG) WITH A 746 MMBTU/HR DUCT BURNER AND A 570 MW NOMINALLY RATED STEAM TURBINE SHARED WITH C-3959-1 AND C-3959-2.

CONDITIONS OF CERTIFICATION AQ-1 THROUGH AQ-59 APPLY PER TURBINE/HRSG UNIT UNLESS OTHERWISE IDENTIFIED.

AQ-1 The project owner shall obtain APCO and CPM approval for the use of any equivalent turbine not specifically approved by the Authority to Construct. Approval of an equivalent turbine shall only be made after the APCO's determination that the submitted design and performance data for the proposed turbine is equivalent to the approved turbine. [District Rule 2201]

Verification: The project owner shall submit a request for approval, including specific design and performance data for equivalent turbines not specifically approved by the Authority to Construct, to the APCO and CPM at least 90 days prior to the installation of the turbines.

AQ-2 The project owner's request for approval of an equivalent turbine shall include the following information: turbine manufacturer and model number,

nominal megawatt (MW) rating, maximum heat input rating, and manufacturer's guaranteed emission concentrations. [District Rule 2201]

Verification: The project owner shall submit a request for approval for equivalent turbines not specifically approved by the Authority to Construct to the APCO and CPM at least 90 days prior to the installation of the turbines.

AQ-3 The project owner's request for approval of an equivalent turbine shall be submitted to the District and CPM at least 90 days prior to the planned installation date. The project owner shall also notify the District and CPM at least 30 days prior to the actual installation of the District and CPM approved equivalent turbine. [District Rule 2201]

Verification: The project owner shall submit a request for approval for equivalent turbines not specifically approved by the Authority to Construct to the APCO and CPM at least 90 days prior to the installation of the turbines, and notify the District and CPM at least 30 days prior to the actual installation of the approved equivalent turbine.

AQ-4 The owner of the San Joaquin Valley Energy Center (SJVEC) shall minimize the emissions from the gas turbine and heat recovery steam generator to the maximum extent possible during the commissioning period. Conditions **AQ-4** through **AQ-16** shall apply only during the commissioning period as defined below. Unless otherwise indicated, Conditions **AQ-17** through **AQ-59** and conditions **AQ-105** through **AQ-117** shall apply after the commissioning period has ended. [District Rule 2201]

Verification: The project owner shall provide in the monthly commissioning status report (see the verification for Condition AQ-10) information regarding the types and effectiveness of methods used to minimize commissioning period emissions.

AQ-5 Commissioning activities are defined as, but not limited to, all testing, adjustment, tuning, and calibration activities recommended by the equipment manufacturers and the SJVEC construction contractor to insure safe and reliable steady state operation of the gas turbines, heat recovery steam generators, steam turbine, auxiliary boiler, and associated electrical delivery systems. [District Rule 2201]

Verification: None.

AQ-6 Commissioning period shall commence when all mechanical, electrical, and control systems are installed and individual system startup has been completed, or when a gas turbine is first fired, whichever occurs first. The commissioning period shall terminate when the plant has completed initial performance testing and is available for commercial operation. [District Rule 2201]

Verification: None.

AQ-7 At the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the combustors of this unit shall be tuned to minimize emissions. [District Rule 2201]

Verification: The project owner shall provide combustor-tuning information to demonstrate compliance with this condition, and that information shall be submitted to the CEC CPM as part of the monthly commissioning status report noted in the verification of Condition AQ-10.

AQ-8 At the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the Selective Catalytic Reduction (SCR) system and the oxidation catalyst shall be installed, adjusted, and operated to minimize emissions from this unit. [District Rule 2201]

Verification: The project owner shall provide emission abatement system information (such as dates of catalyst installation and ammonia grid initial operation) to demonstrate compliance with this condition, and that information shall be submitted to the CEC CPM as part of the monthly commissioning status report noted in the verification of Condition AQ-10.

AQ-9 Coincident with the steady-state operation of the SCR system and the oxidation catalyst, NO_x and CO emissions from this unit shall comply with the limits specified in condition **AQ-32** and **AQ-33**. [District Rule 2201]

Verification: The project owner shall provide emissions data to demonstrate compliance with this condition, and that data shall be submitted to the CEC CPM as part of the monthly commissioning status report noted in the verification of **Condition AQ-10.**

AQ-10 The project owner shall submit a plan to the District at least four weeks prior to the first firing of this unit, describing the procedures to be followed during the commissioning period. The plan shall include a description of each commissioning activity, the anticipated duration of each activity in hours, and the purpose of the activity. The activities described shall include, but not limited to, the tuning of the combustors, the installation and operation of the SCR systems and the oxidation catalyst, the installation, calibration, and testing of the NO_x and CO continuous emissions monitors, and any activities requiring the firing of this unit without abatement by the SCR system or oxidation catalyst. [District Rule 2201]

Verification: The project owner shall submit a single commissioning plan to the District and the CPM at least four weeks prior to the first firing of any combustion turbine, describing in detail the procedures to be followed for each turbine. The project owner shall submit, commencing one month from the time of gas turbine first fire, a monthly commissioning status report throughout the duration of the

commissioning phase that demonstrates compliance with the commissioning plan and demonstrates compliance with all other substantive requirements listed in Conditions **AQ-4** through **AQ-16**. The monthly commissioning status report shall be submitted to the CPM monthly within 10 days of the numeric calendar day of turbine first fire date.

AQ-11 Emission rates from this unit, during the commissioning period, shall not exceed any of the following: NO_x (as NO_2) - 189 lb/hr or 2,268 lb/day; VOC (as methane) - 17 lb/hr or 204 lb/day; CO - 902 lb/hr or 4,620 lb/day; PM_{10} - 276 lb/day; or SO_x (as SO_2) - 44.2 lb/day. [District Rule 2201]

Verification: The project owner shall provide emissions data to demonstrate compliance with this condition, and that data shall be submitted to the CEC CPM as part of the monthly commissioning status report noted in the verification of Condition **AQ-10**.

AQ-12 Only one of the turbine units C-3959-1, C3959-2, and C3959-3 shall be operated at any one time without abatement and only during commissioning. Combined emission rates from units C-3959-1, C-3959-2, and C-3959-3, during the commissioning period, shall not exceed any of the following: NO_x (as NO_2) - 349 lb/hr or 3,630.4 lb/day; VOC (as methane) - 49 lb/hr or 572 lb/day; CO - 2,706 lb/hr or 12,715.4 lb/day; PM_{10} - 828 lb/day; or SO_x (as SO_2) - 132.6 lb/day. [District Rule 2201]

Verification: The project owner shall provide emissions data to demonstrate compliance with this condition, and that data shall be submitted to the CEC CPM as part of the monthly commissioning status report noted in the verification of Condition **AQ-10**.

AQ-13 During the commissioning period, the project owner shall demonstrate compliance with conditions **AQ-11** and **AQ-12** through the use of properly operated and maintained continuous emissions monitors and recorders as specified in conditions **AQ-23** and **AQ-24**. The monitored parameters for this unit shall be recorded at least once every 15 minutes (excluding normal calibration periods or when the monitored source is not in operation). [District Rule 2201]

Verification: The project owner shall provide CEM data to demonstrate compliance with **conditions AQ-11 and AQ-12**, and that data shall be submitted to the CEC CPM as part of the monthly commissioning phase status report noted in the verification of **Condition AQ-10**.

AQ-14 The continuous monitors specified in conditions **AQ-23** and **AQ-24** shall be installed, calibrated, and operational prior to the first firing of this unit. After first firing, the detection range of the CEMS shall

be adjusted as necessary to accurately measure the resulting range of NOx and CO emission concentrations. [District Rule 2201]

Verification: The project owner shall provide notification to the District and the CPM of the anticipated dates for installation, calibration, and testing for the CEMS at least 10 days prior to installation. The project owner shall provide a report to the District and CPM for approval demonstrating compliance with CEMS calibration requirements prior to turbine first fire. The project owner shall provide ongoing calibration data in the monthly commissioning status reports (see verification of Condition **AQ-10**).

AQ-15 The total number of firing hours of this unit without abatement of emissions by the SCR system and the oxidation catalyst shall not exceed 294 hours during the commissioning period. Such operation of this unit without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR system and the oxidation catalyst in place. Upon completion of these activities, the project owner shall provide written notice to the District and the unused balance of the 294 firing hours without abatement shall expire. [District Rule 2201]

Verification: The project owner shall provide to the District and the CPM a reporting of the unused balance of the 294 firing hours without abatement for each turbine in the monthly commissioning status reports (see verification of Condition AQ-10).

AQ-16 The total mass emissions of NOx, CO, VOC, PM10, and SOx that are emitted during the commissioning period shall accrue towards the consecutive twelve-month emission limits specified in **Condition AQ-38**. [District Rule 2201]

Verification: None.

AQ-17 The project owner shall notify the District of the date of initiation of construction no later than 30 days after such date, 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. [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 date of anticipated startup, defined here as first turbine fire, not more than 60 days or less than 30 days prior to such date, and the date of actual startup within fifteen (15) days after such date.

AQ-18 Selective catalytic reduction (SCR) system and oxidation catalyst shall serve the gas turbine engine. The project owner shall submit SCR and oxidation catalyst design details to the District at least 30 days prior to commencement of construction. [District Rule 2201]

Verification: The project owner shall submit SCR and oxidation catalyst design details to the District and the CPM 30 days prior to commencement of construction.

AQ-19 The project owner shall submit continuous emission monitor design, installation, and operational details to the District at least 30 days prior to commencement of construction. [District Rule 2201]

Verification: The project owner shall provide copies of drawings of the continuous emissions monitor design, installation, and operations details to the District and the CPM at least 30 days prior to commencement of construction.

AQ-20 The project owner shall submit to the District information correlating the NO_x control system operating parameters to the associated measured NO_x output. The information must be sufficient to allow the District to determine compliance with the NO_x emission limits of this permit during times that the CEMS is not functioning properly. [District Rule 4703]

Verification: The project owner shall compile the required NOx control system and emissions data and submit the information to the CPM and the APCO in the Quarterly Operational Reports (**AQ-C8**).

AQ-21 Combustion turbine generator (CTG) and electrical generator lube oil vents shall be equipped with mist eliminators. Visible emissions from lube oil vents shall not exhibit opacity of 5-percent or greater, except for up to three minutes in any hour. [District Rules 2201 and 4101]

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB and the Energy Commission to verify the installation and proper operation of the lube oil vent mist eliminators.

AQ-22 Heat recovery steam generator design shall provide space for additional selective catalytic reduction catalyst and oxidation catalyst if required to meet NO_x and CO emission limits. [District Rule 2201]

Verification: The project owner shall submit SCR and oxidation catalyst design details that demonstrate compliance with this condition to the APCO and the CPM 30 days prior to commencement of construction.

AQ-23 The CTG shall be equipped with a continuous monitoring system to measure and record fuel consumption. [District Rules 2201, 4001]

Verification: The project owner shall make the site available for inspection of the hourly operation and fuel consumption measuring equipment and records by representatives of the District, CARB, and the Energy Commission.

AQ-24 The HRSG shall be equipped with a continuous emission monitors (CEMs) for NO_x, CO, and O_2. Continuous emissions monitor(s) shall meet the requirements of 40 CFR part 60, Appendices B and F (for CO), and 40 CFR part 75 (for NO_x and O_2), and of the District-approved monitoring protocol, 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 for startups and shutdowns specified herein. 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 contained in this document. [District Rules 2201, 4001, and 4703]

Verification: The project owner shall provide a Continuous Emission Monitoring System (CEMS) protocol for approval by the CPM and the APCO at least 60 days prior to installation of the CEMS. The project owner shall make the site available for inspection of the CEMS by representatives of the District, CARB and the Commission.

AQ-25 The project owner shall install and maintain equipment, facilities and systems compatible with the District's CEM data polling software system and shall make CEM data available to the District's automated polling system on a daily basis. [District Rule 1080]

Verification: The project owner shall provide a Continuous Emission Monitoring System (CEMS) protocol for approval by the CPM and the APCO at least 60 days prior to installation of the CEMS. The project owner shall make the site available for inspection of the CEMS by representatives of the District, CARB and the Commission.

AQ-26 Upon notice by the District that the facility's CEM system is not providing polling data, the project owner may continue to operate the facility without providing automated data for a maximum of 30 days per calendar year provided the CEM data is sent to the District by a District-approved alternative method. [District Rule 1080]

Verification: The project owner shall provide required non-polled CEM data to the District by a District-approved alternative method.

AQ-27 The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO_x, CO, and O_2 analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI,

Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081]

Verification: Prior to construction of the turbine stacks, the project owner shall provide to the CPM for approval detailed plan drawings of the turbine stacks that show the sampling ports and demonstrate compliance with the requirements of this condition. The project owner shall make the site available for inspection of the turbine stacks by representatives of the District, CARB and the Energy Commission.

AQ-28 The CTG shall be fired exclusively on natural gas with a sulfur content of no greater than 0.25 grain of sulfur compounds (as S) per 100 dry scf of natural gas. [District Rule 2201]

Verification: The project owner shall submit to the CPM and APCO the fuel sulfur content data, as required to be compiled in Condition **AQ-45**, demonstrating compliance with this condition as part of the Quarterly Operational Report (**AQ-C8**).

AQ-29 During startup or shutdown, CTG exhaust emissions shall not exceed any of the following: NO_x (as NO_2) - 80 lb/hr, VOC - 16 lb/hr, or CO - 902 lb/hr, based on three hour averages. [California Environmental Quality Act]

Verification: The project owner shall submit to the CPM and APCO the turbine startup and shutdown emissions data demonstrating compliance with this condition as part of the Quarterly Operational Report (**AQ-C8**).

AQ-30 Combined emission rates from units C-3959-1, C-3959-2, and C-3959-3, during startup or shutdown, shall not exceed any of the following limits: NO_x (as NO_2) 118.02 lb/hr, VOC - 29.26 lb/hr, or CO - 948.28 lb/hr, based on three hour averages. [District Rules 2201 and 4102]

Verification: The project owner shall submit to the CPM and APCO the turbine startup and shutdown emissions data demonstrating compliance with this condition as part of the Quarterly Operational Report (**AQ-C8**).

AQ-31 Startup is defined as the period beginning with turbine initial firing until the unit meets the lb/hr and ppmvd emission limits in condition **AQ-33**. Shutdown is defined as the period beginning with initiation of turbine shutdown sequence and ending with cessation of firing of the gas turbine. Startup and shutdown durations shall not exceed three hours and one hour, respectively, per occurrence. Startup and shutdown events shall not exceed 416 hours per calendar year. [District Rule 2201]

Verification: The project owner shall submit to the CPM and APCO the turbine startup and shutdown event duration data demonstrating compliance with this condition as part of the Quarterly Operational Report (**AQ-C8**).

AQ-32 Emission rates from this unit (with duct burner firing), except during startup and shutdown periods, shall not exceed any of the following limits: NO_x (as NO_2) 19.01 lb/hr and 2.0 ppmvd @ 15 percent O_2; VOC (as methane) - 6.63 lb/hr and 2.0 ppmvd @ 15 percent O_2; CO - 23.14 lb/hr and 4.0 ppmvd @ 15 percent O_2; PM_{10} - 11.5 lb/hr; or SO_x (as SO_2) - 1.84 lb/hr. NO_x (as NO_2) emission limits are one hour rolling averages. All other emission limits are three-hour rolling averages. [District Rules 2201, 4001, and 4703]

Verification: The project owner shall submit to the CPM and APCO turbine emissions data demonstrating compliance with this condition as part of the Quarterly Operational Report (**AQ-C8**).

AQ-33 Emission rates from this unit (without duct burner firing), except during startup and shutdown periods, shall not exceed any of the following limits: NO_x (as NO_2) – 14.27 lb/hr and 2.0 ppmvd @ 15 percent O_2; VOC (as methane) – 3.48 lb/hr and 1.4 ppmvd @ 15 percent O_2; CO – 17.37 lb/hr and 4.0 ppmvd @ 15 percent O_2; PM_{10} – 9.0 lb/hr; or SO_x (as SO_2) - 1.38 lb/hr. NO_x (as NO_2) emission limits are one hour rolling averages. All other emission limits are three-hour rolling averages. [District Rules 2201, 4001, and 4703]

Verification: The project owner shall submit to the CPM and APCO turbine emissions data demonstrating compliance with this condition as part of the Quarterly Operational Report (**AQ-C8**).

AQ-34 Compliance with NO_x emissions limitations specified in conditions **AQ-32** and **AQ-33** shall not be required during short-term excursions limited to a cumulative total of 10 hours per rolling 12-month period. Short-term excursions are defined as 15-minute periods designated by the project owner (and approved by the APCO) that are the direct results of transient load conditions, not to exceed four consecutive 15-minute periods, when the 15-minute average NO_x concentration exceeds 2.0 ppmvd @ 15 percent O_2. The maximum 1-hour average NO_x concentration for periods that include short-term excursions shall not exceed 30 ppmvd @ 15 percent O_2. [District Rule 2201]

Verification: The project owner shall submit to the CPM and APCO turbine emissions data demonstrating compliance with this condition as part of the Quarterly Operational Report (**AQ-C8**).

AQ-35 Examples of transient load conditions include but are not limited to the following: (1) initiation/shutdown of combustion turbine inlet air

cooling; (2) initiation/shutdown of combustion turbine steam injection for power augmentation; (3) rapid combustion turbine load changes; and (4) initiation/shutdown of HRSG duct burners. All emissions during short-term excursions shall accrue towards the hourly, daily and annual emissions limitations of this permit and shall be included in all calculations of hourly, daily and annual mass emission rates as required by this permit. [District Rule 2201]

Verification: The project owner shall submit to the CPM and APCO turbine emissions data demonstrating compliance with this condition as part of the Quarterly Operational Report (**AQ-C8**).

AQ-36 Emissions from this unit, on days when a startup and/or shutdown occurs, shall not exceed the following limits: NO_x (as NO_2) 681.2 lb/day; VOC - 184.0 lb/day; CO - 4,047.7 lb/day; PM_{10} - 276.0 lb/day; or SO_x (as SO_2) - 44.2 lb/day. [District Rule 2201]

Verification: The project owner shall submit to the CPM and APCO turbine emissions data demonstrating compliance with this condition as part of the Quarterly Operational Report (**AQ-C8**).

AQ-37 The ammonia (NH_3) emissions shall not exceed 10 ppmvd @ 15 percent O_2 over a 24 hour rolling average. [District Rule 2201]

Verification: The project owner shall submit to the CPM and APCO turbine emissions data demonstrating compliance with this condition as part of the Quarterly Operational Report (**AQ-C8**).

AQ-38 Annual emissions from the CTG, calculated on a 12 consecutive month rolling basis, shall not exceed any of the following: NO_x (as NO_2) - 176,524 lb/year; CO - 549,596 lb/year; VOC - 51,760 lb/year; PM_{10} - 91,592 lb/year; or SO_x (as SO_2) - 14,436 lb/year. [District Rule 2201]

Verification: The project owner shall submit to the CPM and APCO turbine emissions data demonstrating compliance with this condition as part of the Quarterly Operational Report (**AQ-C8**).

AQ-39 Each one-hour period shall commence on the hour. Each one-hour period in a three hour rolling average will commence on the hour. The three-hour average will be compiled from the three most recent one-hour periods. Each one-hour period in a twenty-four hour average for ammonia slip will commence on the hour. The twenty-four hour average will be calculated starting and ending at twelve-midnight. [District Rule 2201]

Verification: None.

AQ-40 Daily emissions will be compiled for a twenty-four hour period starting and ending at twelve-midnight. Each month in the twelve consecutive month rolling average emissions shall commence at the beginning of the first day of the month. The twelve consecutive month rolling average emissions to determine compliance with annual emissions limitations shall be compiled from the twelve most recent calendar months. [District Rule 2201]

Verification: None.

AQ-41 Compliance with the ammonia slip limit shall be demonstrated during all operating conditions, excluding startups and shutdowns, utilizing a continuous in-stack ammonia monitor acceptable to the District. As an alternative to using a continuous in-stack ammonia monitor, the project owner may submit a plan for an alternative method of demonstrating continuous compliance with the ammonia slip limit (except during startups and shutdowns) base on measurements of ammonia flow rate and/or other process parameters. At least 180 days prior to initial startup the project owner shall submit an ammonia-monitoring plan for District review and approval. The plan shall indicate the method by which the project owner proposes to demonstrate compliance with the requirements of this condition. Upon approval by the District, the project owner shall implement the ammonia-monitoring plan. [District Rule 4102]

Verification: The project owner shall provide an ammonia-monitoring plan for approval by the CPM and the APCO at least 180 days prior to initial startup. If necessary, the project owner shall provide a Continuous Emission Monitoring System (CEMS) protocol for approval by the CPM and the APCO at least 60 days prior to installation of the ammonia CEMS.

AQ-42 Source testing to measure startup NO_x, CO, and VOC mass emission rates shall be conducted for one of the gas turbines (C-3959-1, C-3959-2, or C-3959-3) prior to the end of the commissioning period and at least once every seven years thereafter. CEM relative accuracy shall be determined during startup source testing in accordance with 40 CFR 60, Appendix B. If CEM data is not certifiable to determine compliance with NO_x and CO startup emission limits, then source testing to measure startup NO_x and CO mass emission rates shall be conducted at least once every 12 months. [District Rule 1081]

Verification: The results and field data collected during source tests shall be submitted to the CPM and the District within 60 days of testing.

AQ-43 Source testing (with and without duct firing) to measure the NOx, CO, and VOC emission rates (lb/hr and ppmvd @ 15 percent O_2)

shall be conducted within 120 days after initial operation and at least once every twelve months thereafter. [District Rules 1081 and 4703]

Verification: The results and field data collected during source tests shall be submitted to the CPM and the District within 60 days of testing.

AQ-44 Source testing (with and without duct firing) to measure the PM_{10} emission rate (lb/hr) and the ammonia emission rate shall be conducted within 120 days after initial operation and at least once every twelve months thereafter. [District Rule 1081]

Verification: The results and field data collected during source tests shall be submitted to the CPM and the District within 60 days of testing.

AQ-45 Compliance with natural gas sulfur content limit shall be demonstrated within 60 days after the end of the commissioning period and weekly thereafter, except after demonstrating compliance with the fuel sulfur content limit for eight consecutive weeks for a fuel source, then the testing frequency shall not be less than quarterly. If a test shows noncompliance with the sulfur content requirement, the facility must return to weekly testing until eight consecutive weeks show compliance. [District Rules, 1081, 2540, and 4001]

Verification: The fuel sulfur content data shall be submitted to the CPM and the APCO in the Quarterly Operation Reports (AQ-11).

AQ-46 Compliance demonstration (source testing) shall be District witnessed, or authorized and samples shall be collected by a California Air Resources Board certified testing laboratory. Source testing shall be conducted using the methods and procedures approved by the District. 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. The results of each source test shall be submitted to the District within 60 days thereafter. [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 approval 15 days prior to testing. The results and field data collected during source tests shall be submitted to the CPM and the District within 60 days of testing.

AQ-47 The following test methods shall be used: PM10 - EPA Method 5 (front half and back half) or 201 and 202a, 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, and fuel gas sulfur content - ASTM D3246. 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: The project owner shall provide a source test plan demonstrating compliance with this condition to the CPM and APCO for approval fifteen (15) days prior to testing.

AQ-48 The project owner shall maintain the following records: date and time, duration, and type of any startup, shutdown, or malfunction; performance testing, evaluations, calibrations, checks, adjustments, any period during which a continuous monitoring system or monitoring device was inoperative, and maintenance of any continuous emission monitor. [District Rules 2201 and 4703]

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

AQ-49 The project owner shall maintain the following records: hours of operation, fuel consumption (scf/hr and scf/rolling twelve month period), continuous emission monitor measurements, calculated ammonia slip, and calculated NOx mass emission rates (lb/hr and lb/twelve month rolling period). [District Rules 2201 and 4703]

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

AQ-50 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: None.

AQ-51 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 to the CPM and APCO the CEMS audits demonstrating compliance with this condition as part of the Quarterly Operational Report (**AQ-C8**).

AQ-52 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 to the CPM and APCO the CEMS audits demonstrating compliance with this condition as part of the Quarterly Operational Report (**AQ-C8**).

AQ-53 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, 6.1]

Verification: The project owner shall comply with the notification requirements of the District and submit written copies of these notification reports to the CPM and the APCO as part of the Quarterly Operational Report (**AQ-C8**).

AQ-54 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, 7.0]

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 Operational Report (**AQ-C8**).

AQ-55 The project owner 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 (if known), corrective actions taken and preventive measures adopted; averaging period used for data reporting shall correspond to the averaging period for each respective emission standard; applicable time and date of each period during which the 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 submit to the CPM and APCO the excess emissions and other data demonstrating compliance with this condition as part of the Quarterly Operational Report (**AQ-C8**).

AQ-56 The project owner shall provide notification and record keeping as required under 40 CFR, Part 60, Subpart A, 60.7. [District Rule 4001]

Verification: The project owner shall comply with the notification and record keeping requirements specified under 40 CFR, Part 60, Subpart A, 60.7. The project owner shall make records available for inspection by representatives of the District, CARB and the Commission upon request.

AQ-57 The project owner shall submit a semiannual report to the APCO listing any daily period during which the sulfur content of the fuel being fired in the gas turbine exceeded 0.8 percent by weight. [District Rule 4001]

Verification: The project owner shall submit to the CPM and APCO the sulfur content data as necessary to comply with this condition as part of every other Quarterly Operational Report (AQ-C8).

AQ-58 All records required to be maintained by this permit shall be maintained for a period of at least five years and shall be made readily available for District inspection upon request. [District Rule 2201]

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

AQ-59 The project owner shall submit an application to comply with Rule 2540 - Acid Rain Program. [District Rule 2540]

Verification: The project owner shall submit to the CPM copies of the Title IV permit and proof that necessary Title IV SO_2 emission allotments have been acquired at least fifteen (15) days prior to the initial firing of the turbine(s).

SJVACPD Permit No. UNIT C-3959-4-0: 227,163 GPM MECHANICAL/INDUCED DRAFT COOLING TOWER WITH 16 CELLS SERVED BY HIGH EFFICIENCY DRIFT ELIMINATOR.

CONDITIONS OF CERTIFICATION AQ-60 THROUGH AQ-65 APPLY TO THE COOLING TOWER.

AQ-60 The project owner shall submit cooling tower design details, including the cooling tower type, drift eliminator design details, and materials of construction to the District at least 90 days before the tower is operated. [District Rule 7012]

Verification: The project owner shall provide copies of cooling tower and drift eliminator design details to the CPM and the District for approval at least 30 days prior to construction of permanent foundations for the cooling tower.

AQ-61 No hexavalent chromium containing compounds shall be added to cooling tower circulating water. [District Rule 7012]

Verification: The project owner shall provide the list of cooling tower water additives (i.e. biocides, fungicides, anti-scaling compounds, etc.) demonstrating compliance with this condition to the CPM for approval at least 30 days prior to operation of the cooling tower and shall provide any revisions to the cooling tower water additives list to the CPM for approval prior using the new water additive.

AQ-62 Drift eliminator drift rate shall not exceed 0.0005 percent. [District Rule 2201]

Verification: The project owner shall provide copies of cooling tower and drift eliminator design details to the CPM and the District for approval at least 30 days prior to construction of permanent foundations for the cooling tower.

AQ-63 PM_{10} emission rate shall not exceed 25.9 lb/day. [District Rule 2201]

Verification: The project owner shall submit to the CPM and APCO the cooling tower emission data demonstrating compliance with this condition as part of the Quarterly Operational Report (**AQ-C8**).

AQ-64 Compliance with the PM_{10} daily emission limit shall demonstrated as follows: PM_{10} lb/day = circulating water recirculation rate * total dissolved solids concentration in the blowdown water * design drift rate. [District Rule 2201]

Verification: None.

AQ-65 Compliance with PM_{10} emission limit shall be determined by blowdown water sample analysis by independent laboratory within 60 days of initial operation and quarterly thereafter. [District Rule 1081]

Verification: The results and field data collected from cooling tower blowdown water samples analysis shall be submitted to the CPM and the District as part of the Quarterly Operational Report (**AQ-C8**).

SJVACPD Permit No. UNIT C-3959-5-0: 161 MMBTU/HR ABCO D-TYPE NATURAL GAS FIRED BOILER OR EQUIVALENT WITH COEN QUANTUM LOW NOX (QLN) BURNER OR EQUIVALENT WITH A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM AND AN OXIDATION CATALYST.

CONDITIONS OF CERTIFICATION AQ-66 THROUGH AQ-90 APPLY TO THE AUXILIARY BOILER.

AQ-66 The project owner shall obtain APCO approval for the use of any equivalent boiler or burner not specifically approved by this Authority to Construct. Approval of an equivalent boiler or burner

shall only be made after the APCO's determination that the submitted design and performance data for the proposed boiler/burner is equivalent to the approved boiler/burner. [District Rule 2201]

Verification: The project owner shall submit a request for approval, including specific design and performance data for equivalent boiler or burner not specifically approved by the Authority to Construct to the APCO and the CPM at least 90 days prior to the installation of the auxiliary boiler.

AQ-67 The project owner's request for approval of an equivalent boiler or burner shall include the following information: boiler or burner manufacturer and model number, maximum heat input rating, manufacturer's guaranteed emission concentrations and a description of low-NO_x operation. [District Rule 2201]

Verification: The project owner shall submit a request for approval including specific design and performance data for equivalent boiler or burner not specifically approved by the Authority to Construct to the APCO and the CPM at least 90 days prior to the installation of the auxiliary boiler.

AQ-68 The project owner's request for approval of an equivalent boiler or burner shall be submitted to the District at least 90 days prior to the planned installation date. The project owner shall also notify the District at least 30 days prior to the actual installation of the District approved equivalent boiler or burner. [District Rule 2201]

Verification: The project owner shall submit a request for approval including specific design and performance data for equivalent boiler or burner not specifically approved by the Authority to Construct to the APCO and CPM at least 90 days prior to the planned installation of the auxiliary boiler, and notify the CPM and District at least 30 days prior to the actual installation of the approved equivalent boiler or burner.

AQ-69 The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO_x, CO, and O_2 analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081]

Verification: Prior to construction of the auxiliary boiler stack the project owner shall provide to the CPM for approval detailed plan drawings of the auxiliary boiler stack that show the sampling ports and demonstrate compliance with the requirements of this condition. The project owner shall make the site available

for inspection of the auxiliary boiler stack by representatives of the District, CARB and the Energy Commission.

AQ-70 Ammonia injection grid shall be equipped with operational ammonia flow meter and injection pressure indicator. [District Rules 2201 and 4351]

Verification: The project owner shall make the site available for inspection of the ammonia flow meter and injection pressure indicator by representatives of the District, CARB and the Commission.

AQ-71 The project owner shall monitor and record exhaust gas temperature at selective catalytic reduction catalyst and oxidation catalyst inlets. [District Rules 2201 and 4351]

Verification: The project owner shall make the site available for inspection of the exhaust gas temperature measuring equipment and temperature records by representatives of the District, CARB, and the Energy Commission.

AQ-72 The boiler shall be fired exclusively on natural gas with a sulfur content of no greater than 0.25 grain of sulfur compounds (as S) per 100 dry scf of natural gas. [District Rule 2201]

Verification: The project owner shall submit to the CPM and APCO the fuel sulfur content data, as required to be compiled in Condition **AQ-45**, demonstrating compliance with this condition as part of the Quarterly Operational Report (**AQ-C8**).

AQ-73 During startup or shutdown, boiler exhaust emissions shall not exceed either of the following: NO_x (as NO_2) - 10.0 lb/hr or CO - 12.5 lb/hr. [District Rules 2201 and 4102]

Verification: The project owner shall submit to the CPM and APCO the auxiliary boiler startup and shutdown emissions data demonstrating compliance with this condition as part of the Quarterly Operational Report (**AQ-C8**).

AQ-74 Startup is defined as the period beginning with boiler initial firing until the unit meets the ppmvd emission limits in condition **AQ-75**. Shutdown is defined as the period beginning with initiation of boiler shutdown sequence and ending with cessation of firing of the boiler. Startup and shutdown durations shall not exceed one hour, each, per occurrence. [District Rule 2201]

Verification: The project owner shall submit to the CPM and APCO the auxiliary boiler startup and shutdown event duration data demonstrating compliance with this condition as part of the Quarterly Operational Report (**AQ-C8**).

AQ-75 Emission rates from this unit, except during startup and shutdown periods, shall not exceed any of the following: NO_x (as NO_2) - 9.0

ppmvd @ 3 percent O_2 or 0.0112 lb/MMBtu; VOC (as methane) - 10.0 ppmvd @ 3 percent O_2; CO - 50.0 ppmvd @ 3 percent O_2; PM_{10} - 0.0205 lb/MMBtu; or SO_x (as SO_2) - 0.0007 lb/MMBtu. All emission limits are three-hour rolling averages. [District Rules 2201, 4305, and 4351]

Verification: The project owner shall submit to the CPM and APCO the auxiliary boiler emissions data demonstrating compliance with this condition as part of the Quarterly Operational Report (**AQ-C8**).

AQ-76 Ammonia (NH_3) emissions shall not exceed 10 ppmvd @ 3 percent O_2 over a 24 hour rolling average. [District Rule 2201]

Verification: The project owner shall submit to the CPM and APCO the auxiliary boiler emissions data demonstrating compliance with this condition as part of the Quarterly Operational Report (**AQ-C8**).

AQ-77 Emissions from this unit, on days when a startup and/or shutdown occurs, shall not exceed the following: NO_x (as NO_2) - 43.3 lb/day; VOC - 16.6 lb/day; CO - 148.8 lb/day; PM_{10} - 79.2 lb/day; or SO_x (as SO_2) - 2.7 lb/day. [District Rule 2201]

Verification: The project owner shall submit to the CPM and APCO the auxiliary boiler emissions data demonstrating compliance with this condition as part of the Quarterly Operational Report (**AQ-C8**).

AQ-78 Annual hours of operation shall not exceed 3,000 hours per calendar year. [District Rule 2201]

Verification: The project owner shall submit to the CPM and APCO the auxiliary boiler operations data demonstrating compliance with this condition as part of the Quarterly Operational Report (**AQ-C8**).

AQ-79 Source testing to measure startup NO_x and CO mass emission rates shall be conducted upon initial operation and at least once every seven years thereafter. [District Rule 1081]

Verification: The results and field data collected during source tests shall be submitted to the CPM and the District within 60 days of testing.

AQ-80 Source testing to measure the NO_x, CO, VOC, PM_{10} and ammonia emissions rates shall be conducted within 60 days of initial operation and not less than once every 12 months thereafter, except after demonstrating compliance on two consecutive annual source tests, the unit shall be tested not less than once every thirty-six months. [District Rules 1081, 4305, and 4351]

Verification: The results and field data collected during source tests shall be submitted to the CPM and the District within 60 days of testing.

AQ-81 If the project owner fails any compliance demonstration for the NO_x, CO, VOC, PM_{10} and/or ammonia emission limits of this permit when

testing not less than every 36 months, compliance with the NO_x, CO, VOC, PM_{10} and/or ammonia emission limits shall be demonstrated not less than once every 12 months for at least two successive successful tests. [District Rules 1081, 4305, and 4351]

Verification: The results and field data collected during source tests shall be submitted to the CPM and the District within 60 days of testing.

AQ-82 The following test methods shall be used: PM_{10} - EPA Method 5 (front half and back half) or 201 and 202a, NO_x (ppmv) - EPA Method 7E or ARB Method 100, NO_x (lb/MMBtu) - EPA Method 19, CO (ppmv) - EPA Method 10 or ARB Method 100, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100, VOC - EPA Method 18 or 25, ammonia - BAAQMD ST-1B, and fuel hhv - ASTM D 1826-88 or D 1945-81 in conjunction with ASTM D 3588-89 for gaseous fuels. 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, 4305, and 4351]

Verification: The project owner shall provide a source test plan demonstrating compliance with this condition to the CPM and APCO for approval fifteen (15) days prior to testing.

AQ-83 The stack concentration of NO_x (as NO_2), CO, and O_2 shall be measured at least on a monthly basis using District approved portable analyzer. [District Rule 4305]

Verification: The project owner shall submit to the CPM and APCO the auxiliary boiler portable analyzer concentration data demonstrating compliance with this condition as part of the Quarterly Operational Report (**AQ-C8**).

AQ-84 The project owner shall maintain records of the date and time of NO_x, CO, and O_2 measurements, the measured NO_2 and CO concentrations corrected to 3 percent O_2, and the O_2 concentration. The records must also include a description of any corrective action taken to maintain the emissions within the acceptable range. These records shall be retained at the facility for a period of no less than 2 years and shall be made available for District inspection upon request. [District Rule 4305]

Verification: The project owner shall make the auxiliary portable analyzer concentration and corrective action records available for inspection by representatives of the District, CARB, and the Commission upon request.

AQ-85 If the NO_x or CO concentrations, as measured by the portable analyzer, exceed the allowable emissions rate, the project owner shall notify the District and take corrective action within one (1) hour

after detection. If the portable analyzer readings continue to exceed the allowable emissions rate, the project owner shall conduct an emissions test within 60 days, utilizing District-approved test methods, to demonstrate compliance with the applicable emissions limits. [District Rule 4305]

Verification: The results and field data collected during source tests shall be submitted to the CPM and the District within 60 days of testing.

AQ-86 The portable analyzer shall be calibrated as recommended by the manufacturer. All instrument calibration data shall be kept on file including the date of calibration. The calibration date shall not exceed 6 months prior to the date the stack concentrations are measured and recorded. [District Rule 4305]

Verification: The project owner shall make portable analyzer manufacturer operating manuals and calibration records available for inspection by representatives of the District, CARB, and the Commission upon request.

AQ-87 Concentration measurements shall not be taken until the sample acquisition probe has been exposed to the stack gas for at least 150 percent of the response time. Measurements shall be taken in triplicate. [District Rule 4305]

Verification: The project owner shall submit to the CPM and APCO the auxiliary boiler portable analyzer concentration data demonstrating compliance with this condition as part of the Quarterly Operational Report (**AQ-C8**).

AQ-88 If water vapor is not removed prior to measurement, the absolute humidity in the gas stream must be determined so that the gas concentrations may be reported on a dry basis. [District Rule 4305]

Verification: None.

AQ-89 If water vapor creates an interference with the measurement of any component, then the water vapor must be removed from the gas stream prior to concentration measurements. [District Rule 4305]

Verification: None.

AQ-90 Records of monthly natural gas hhv, natural gas consumption, and hours of operation shall be maintained and retained on site for a period at least two years and made available for District inspection upon request. [District Rules 2201 and 4351]

Verification: The project owner shall make the records that demonstrate compliance with this condition available for inspection by representatives of the District, CARB, and the Commission upon request.

SJVACPD Permit No. UNIT C-3959-6-0: 300 HP CUMMINS MODEL 6CTA8.3-FA DIESEL FIRED EMERGENCY IC ENGINE POWERING A FIRE PUMP. CONDITIONS OF CERTIFICATION AQ-91 THROUGH AQ-96 APPLY TO THE EMERGENCY FIRE PUMP ENGINE.

AQ-91 The exhaust stack shall not be fitted with a rain cap, or any other similar device which would impede vertical exhaust flow. [District Rule 4102]

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

AQ-92 The sulfur content of the diesel fuel used shall not exceed 0.05 percent by weight. [District Rule 2201]

Verification: The project owner shall make fuel purchase, MSDS or other fuel supplier records containing diesel fuel sulfur content available for inspection by representatives of the District, CARB and the Energy Commission upon request.

AQ-93 NO_x emissions shall not exceed 5.89 g/hp-hr. [District Rule 2201]

Verification: The project owner shall provide to the CPM and APCO, 30 days prior to installation of the fire pump engine, manufacturer emissions guarantee data demonstrating compliance with this condition.

AQ-94 PM_{10} emissions shall not exceed 0.25 g/hp-hr. [District Rule 2201]

Verification: The project owner shall provide to the CPM and APCO, 30 days prior to installation of the fire pump engine, manufacturer emissions guarantee data demonstrating compliance with this condition.

AQ-95 The engine shall be operated only for maintenance, testing, and required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 0.75 hours per day or 100 hours per year. [District Rules 2201 and 4701]

Verification: The project owner shall submit to the CPM and APCO the fire pump engine operations data demonstrating compliance with this condition as part of the Quarterly Operational Report (**AQ-C8**).

AQ-96 The project owner shall maintain records of hours of emergency and non-emergency operation. Records shall include the date, the number of hours of operation, the purpose of the operation (e.g., load testing, weekly testing, rolling blackout, general area power outage, etc.), and the sulfur content of the diesel fuel used. Such records shall be retained on site for a period of at least five years and made available for District inspection upon request. [District Rule 4701]

Verification: The project owner shall make the fire pump engine operating records available for inspection by representatives of the District, CARB and the Commission upon request.

SJVACPD Permit No. UNIT C-3959-7-0: 1,529 HP CUMMINS MODEL QSV81G OR EQUIVALENT LEAN BURN NATURAL GAS FIRED EMERGENCY IC ENGINE POWERING A 1,100 KW ELECTRICAL GENERATOR.

CONDITIONS OF CERTIFICATION AQ-97 THROUGH AQ-104 APPLY TO THE EMERGENCY GENERATOR ENGINE.

AQ-97 The project owner shall obtain APCO approval for the use of any equivalent IC engine not specifically approved by this Authority to Construct. Approval of an equivalent IC engine shall only be made after the APCO's determination that the submitted design and performance data for the proposed IC engine is equivalent to the approved IC engine. [District Rule 2201]

Verification: The project owner shall submit a request for approval including specific design and performance data for an equivalent emergency generator IC engine not specifically approved by the Authority to Construct to the APCO and the CPM at least 90 days prior to the installation of the emergency generator IC engine.

AQ-98 The project owner's request for approval of an equivalent IC engine shall include the following information: IC engine manufacturer and model number, horsepower (hp) rating, exhaust stack information, and manufacturer's guaranteed emission concentrations. [District Rule 2201]

Verification: The project owner shall submit a request for approval including specific design and performance data for an equivalent emergency generator IC engine not specifically approved by the Authority to Construct to the APCO and the CPM at least 90 days prior to the installation of the emergency generator IC engine.

AQ-99 The project owner's request for approval of an equivalent IC engine shall be submitted to the District at least 90 days prior to the planned installation date. The project owner shall also notify the District at least 30 days prior to the actual installation of the District approved equivalent IC engine. [District Rule 2201]

Verification: The project owner shall submit a request for approval including specific design and performance data for an equivalent emergency generator IC engine not specifically approved by the Authority to Construct to the APCO and CPM at least 90 days prior to the installation of the emergency generator IC

engine, and notify the District and CPM at least 30 days prior to the actual installation of the approved equivalent IC engine.

AQ-100 The exhaust stack shall not be fitted with a rain cap, or any other similar device, which would impede vertical exhaust flow. [District Rule 4102]

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

AQ-101 Emission rates from this unit shall not exceed any of the following: NO_x (as NO_2) - 0.78 g/hp-hr; VOC (as methane) - 0.42 g/hp-hr; CO - 2.50 g/hp-hr; PM_{10} - 0.01 lb/MMBtu; or SO_x (as SO_2) - 0.0007 lb/MMBtu. [District Rule 2201]

Verification: The project owner shall provide to the CPM and APCO, 30 days prior to installation of the emergency generator IC engine, manufacturer emissions guarantee data or other information demonstrating compliance with this condition.

AQ-102 The engine shall be operated only for maintenance, testing, and required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 1 hour per day or 200 hours per year. [District Rules 2201 and 4701]

Verification: The project owner shall submit to the CPM and APCO the emergency generator IC engine operations data demonstrating compliance with this condition as part of the Quarterly Operational Report (**AQ-C8**).

AQ-103 The project owner shall maintain records of hours of emergency and non-emergency operation. Records shall include the date, the number of hours of operation, the purpose of the operation (e.g., load testing, weekly testing, rolling blackout, general area power outage, etc.), and the sulfur content of the diesel fuel used. Such records shall be retained on site for a period of at least five years and made available for District inspection upon request. [District Rule 4701]

Verification: The project owner shall make the emergency generator IC engine records available for inspection by representatives of the District, CARB and the Energy Commission upon request.

CONDITIONS OF CERTIFICATION AQ-104 THROUGH AQ-117 ARE SJVACPD GENERAL FACILITY PERMIT CONDITIONS

AQ-104 The project owner shall not begin actual onsite construction of the equipment authorized by this Authority to Construct until the lead

agency satisfies the requirements of the California Environmental Quality Act (CEQA). [California Environmental Quality Act]

Verification: The project owner shall keep proof of the project's District air permit and CEC certification, including copies of all permit conditions and Conditions of Certification, onsite starting at the commencement of construction through the final decommissioning of the project. The project owner shall make the District's permit conditions and Conditions of Certification available at the project site to representatives of the District, California Air Resource Board (CARB) and the Energy Commission for inspection.

AQ-105 Before initial operation of C-3959-1-0, C-3959-2-0, C-3959-3-0, C-3959-4-0, and C-3959-5-0, emission offsets shall be provided to offset the following increases in: PM_{10}-Q1: 66,234 lb, Q2: 66,234 lb, Q3: 66,234 lb, and Q4: 66,234 lb; NO_x (as NO_2) - Q1: 128,746 lb, Q2: 128,746 lb, Q3: 128,746 lb, and Q4: 128,746 lb; VOC - Q1: 34,378 lb, Q2: 34,378 lb, Q3: 34,378 lb, and Q4: 34,378 lb. Offsets shall be provided at the appropriate distance ratio specified in Rule 2201. [District Rule 2201]

Verification: The project owner shall submit copies of the surrendered ERC certificates to the CPM at least 30 days prior to first fire of the any combustion turbine at the SJVEC site.

AQ-106 All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District NSR Rule]

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

AQ-107 No air contaminant shall be released into the atmosphere, which causes a public nuisance. [District Rule 4102]

Verification: The project owner will document any complaints that it has received from the public in the Quarterly Operational Report (**AQ-C8**). The project owner shall make the site available for inspection by representatives of the District, CARB and the Energy Commission.

AQ-108 Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]

Verification: The project owner shall submit the results of the initial and annual source tests per Condition **AQ-42**.

AQ-109 No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20 percent opacity. [District Rule 4101]

Verification: The project owner shall document any known opacity violations in the Quarterly Operational Report (**AQ-C8**). The project owner shall make the site available for inspection by representatives of the District, CARB and the Energy Commission.

AQ-110 The project owner shall submit an application to comply with Rule 2520 - Federally Mandated Operating Permits within twelve months of commencing operation. [District Rule 2520]

Verification: The project owner shall submit a copy of their Title V – Federal Mandated Operating Permit Application to the CPM within 12 months of commencing operation.

AQ-111 Disturbances of soil related to any construction, demolition, excavation, extraction, and other earthmoving activities shall comply with the requirements for fugitive dust control in SJVUAPCD District Rule 8021 (11/15/01) unless specifically exempted under section 4.0 of Rule 8021. [District Rule 8021]

Verification: The project owner shall document compliance with Rule 8021 in the Monthly Compliance Report, and as necessary after construction is complete in the Quarterly Operational Report (**AQ-C8**).

AQ-112 Outdoor handling, storage, and transport of any bulk material shall comply with the requirements of SJVUAPCD District Rule 8031 (11/15/01), unless specifically exempted under section 4.0 of Rule 8031. [District Rule 8031]

Verification: The project owner shall document compliance with Rule 8031 in the Monthly Compliance Report, and as necessary after construction is complete in the Quarterly Operational Report (**AQ-C8**).

AQ-113 All sites that are subject to SJVUAPCD District Rule 8021, SJVUAPCD District Rule 8031, and SJVUAPCD District Rule 8071 shall comply with the requirements of SJVUAPCD District Rule 8041 (11/15/01), unless specifically exempted under section 4.0 of Rule 8041. [District Rule 8041]

Verification: The project owner shall document compliance with Rule 8041 in the Monthly Compliance Report, and as necessary after construction is complete in the Quarterly Operational Report (**AQ-C8**).

AQ-114 Any open area having 3.0 acres or more of disturbed surface area, that has remained undeveloped, unoccupied, unused or vacant for more than seven days shall comply with the requirements of SJVUAPCD District Rule 8051 (11/15/01), unless specifically exempted under section 4.0 of Rule 8051. [District Rule 8051]

Verification: The project owner shall document compliance with Rule 8051 in the Monthly Compliance Report, and as necessary after construction is complete in the Quarterly Operational Report (**AQ-C8**).

AQ-115 Any new or existing public or private paved or unpaved road, road construction project, or road modification project shall implement the control measures and design criteria of, and comply with the requirements of SJVUAPCD District Rule 8061 (11/15/01) unless specifically exempted under section 4.0 of Rule 8061. [District Rule 8061]

Verification: The project owner shall document compliance with Rule 8061 in the Monthly Compliance Report, and as necessary after construction is complete in the Quarterly Operational Report (**AQ-C8**).

AQ-116 Any unpaved vehicle/equipment traffic area of 1.0 acre or larger shall comply with the requirements of SJVUAPCD District Rule 8071 (11/15/01), unless specifically exempted under section 4.0 of Rule 8071. [District Rule 8071]

Verification: The project owner shall document compliance with Rule 8071 in the Monthly Compliance Report, and as necessary after construction is complete in the Quarterly Operational Report (**AQ-C8**).

AQ-117 Any off-field agricultural sources shall comply with the requirements of SJVUAPCD District Rule 8081 (11/15/01), unless specifically exempted under section 4.0 of Rule 8081. [District Rule 8081]

Verification: The project owner shall document compliance with Rule 8081 in the Monthly Compliance Report, and as necessary after construction is complete in the Quarterly Operational Report (**AQ-C8**).

B. PUBLIC HEALTH

The public health analysis supplements the previous discussion on air quality by examining potential public health effects from project emissions of toxic air contaminants. In this analysis, the Commission considers whether such emissions will result in significant adverse public health impacts that violate standards for public health protection.[35]

SUMMARY AND DISCUSSION OF THE EVIDENCE

Project construction and operation will result in routine emissions of toxic air contaminants (TACs). TACs are categorized as non-criteria pollutants because there are no ambient air quality standards established to regulate their emissions.[36] A distinguishing factor between TACs versus criteria pollutants is that impacts from TACs tend to be highest in close proximity to the source and quickly drop off with distance. Therefore, levels of SJVEC's TACs would be highest in the proposed project's immediate region and would decrease rapidly with distance. In this section, our focus is to determine whether such exposures would be at levels of possible health significance as established using existing assessment methods. (Ex. 2a, p. 4.7-1.)

PUBLIC HEALTH Table 1 below lists combustion-related toxic emissions and shows how each contributes to the health risk analysis. For example, the first row shows that oral exposure to acetaldehyde is not of concern, but if inhaled,

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[35] This Decision addresses other potential public health concerns in the following sections. Hazardous and nonhazardous wastes are described in our section on **Waste Management**. The accidental release of hazardous materials is discussed in our sections on **Hazardous Materials Management & Worker Safety and Fire Protection**. Electromagnetic fields are discussed in the section on **Transmission Line Safety and Nuisance**. Potential impacts to soils and surface water sources are discussed in our section on **Soils and Water Resources**

[36] Criteria pollutants are discussed in our Air Quality section. They are pollutants for which ambient air quality standards have been established by local, state, and federal regulatory agencies.

may have cancer and chronic (long-term) noncancer health effects, but not acute (short-term) effects.

PUBLIC HEALTH Table 1
Types of Health Impacts and Exposure Routes
Attributed to Combustion-Related Toxic Emissions

Substance	Oral Cancer	Oral Noncancer	Inhalation Cancer	Noncancer (Chronic)	Noncancer (Acute)
Acetaldehyde			✓	✓	
Acrolein				✓	✓
Ammonia				✓	✓
Arsenic	✓	✓	✓	✓	
Benzene			✓	✓	✓
1,3-Butadiene			✓	✓	
Cadmium		✓	✓	✓	
Chromium VI			✓	✓	
Copper					✓
Ethylbenzene				✓	
Formaldehyde			✓	✓	✓
Hexane				✓	
Lead	✓	✓	✓		
Mercury		✓		✓	✓
Napthalene				✓	
Nickel			✓	✓	✓
PAHs	✓		✓		
Propylene				✓	
Propylene oxide			✓	✓	✓
Toluene				✓	✓
Xylene				✓	✓
Zinc				✓	

Source: AFC Table 8.6-4 using reference exposure levels and cancer unit risks from CAPCOA Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines, October 1993
Source: (Ex. 2a, p. 4.7-10.)

TAC emissions from the cooling tower originate from contaminants in the cooling source water that become entrained in liquid water droplets emitted as cooling tower drift. Because SJVEC has proposed to use reclaimed water from the Fresno-Clovis Waste Water Treatment Facility (WWTF) as the source for the

facility's evaporative cooling tower, **PUBLIC HEALTH Table 2** lists these substances and shows how each contributes to the health risk analysis.

PUBLIC HEALTH Table 2
Types of Health Impacts and Exposure Routes
Attributed to Cooling Tower Emissions

Substance	Oral Cancer	Oral Noncancer	Inhalation Cancer	Chronic Noncancer	Acute Noncancer
Ammonia				✓	✓
Aluminum				✓	
Arsenic			✓	✓	✓
Cadmium			✓	✓	
Chromium			✓	✓	
Copper				✓	✓
Cyanide				✓	✓
Lead			✓	✓	
Mercury				✓	✓
Nickel			✓	✓	✓
Silver				✓	
Zinc				✓	

Source: AFC Table 8.1C-3 using reference exposure levels and cancer unit risks from CAPCOA Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines, October 1993
Source: (Ex. 2a, p. 4.7-11.)

In addition to the substances identified in **PUBLIC HEALTH Table 2**, there has been public concern that viruses and bacteria could remain in treated wastewater, and that they could be released to the atmosphere in the cooling tower drift at levels that could affect public health. (Exs. 2a, p. 4.7-11; 2 0, pp. 19-21; 4A, pp. 57/58.)

The California Department of Health Services (DHS) regulates the use of recycled water in cooling towers. (22 CCR § 60306.) When recycled water is used in a cooling tower that creates a mist, the regulations would require the following:

- the recycled water used must be disinfected tertiary treated recycled water (DTRW);
- a drift eliminator shall be used whenever the cooling system is in operation; and

- Chlorine, or other biocide, shall be used to treat the recirculating water to minimize the growth of *Legionella* and other micro-organisms. *(Ibid.)*

As conditioned, WWTF reclaimed water will meet or exceed these proposed regulatory requirements, which recent studies have demonstrated to be effective to minimize the growth of *Legionella* and other micro-organisms. (Exs. 2a, p. 4.7-11; 2 0; pp. 19-21; 4A, p. 58; 2/19 RT 249:22-261:16; 256:7-16; *see* **PUBLIC HEALTH Condition 1**.)

1. Health Risk Assessment

A process known as health risk assessment is used to determine if people might be exposed to the foregoing types of pollutants at unhealthy levels. The risk assessment procedure consists of the following steps:

- Identify the types and amounts of hazardous substances that the SJVEC project could emit to the environment;
- Estimate worst-case concentrations of project emissions in the environment using dispersion modeling;
- Estimate amounts of pollutants to which people could be exposed through inhalation, ingestion, and dermal contact; and
- Characterize potential health risks by comparing worst-case exposure to safe standards based on known health effects. (Ex. 2a, p. 4.7-1/2.)

Initially, a screening level risk assessment is performed using simplified assumptions that are intentionally biased toward protection of public health. That is, an analysis is designed that overestimates public health impacts from exposure to project emissions. In reality, it is likely that the actual risks from a power plant will be much lower than the risks that are estimated by the screening level assessment. This is accomplished by examining conditions that would lead to the highest, or worst-case risks, and then using those in the study. Such conditions include:

- Using the highest levels of pollutants that could be emitted from the plant;

- Assuming weather conditions that would lead to the maximum ambient concentration of pollutants;
- Using the type of air quality computer model that predicts the greatest plausible impacts;
- Calculating health risks at the location where the pollutant concentrations are calculated to be the highest;
- Using health-based standards designed to protect the most sensitive members of the population (i.e., the young, elderly, and those with respiratory illnesses); and
- Assuming that an individual's exposure to cancer-causing agents occurs for 70 years. (Ex. 2a, p. 4.7-2.)

The risk assessment process addresses three categories of health impacts: acute (short-term) health effects, chronic (long-term) noncancer effects, and cancer risk (also long-term). Acute health effects result from short-term (1-hour) exposure to relatively high concentrations of pollutants. Acute effects are temporary in nature, and include symptoms such as irritation of the eyes, skin, and respiratory tract. (Ex. 2a, p. 4.7-2.)

Chronic health effects are those that arise as a result of long term exposure to lower concentrations of pollutants. The exposure period is considered to be approximately from 10 to 100 percent of a lifetime (from 7 to 70 years). Chronic health effects include diseases such as reduced lung function and heart disease. *(Ibid.)*

The analysis for noncancer health effects compares the maximum project contaminant levels to safe levels called "reference exposure levels" or RELs. These are amounts of toxic substances to which even sensitive people can be exposed and suffer no adverse health effects. These exposure levels are designed to protect the most sensitive individuals in the population, such as infants, the aged, and people suffering from illness or disease, which makes them more sensitive to the effects of toxic substance exposure. The RELs are based on the most sensitive adverse health effect reported in the medical and

toxicological literature, and include margins of safety. The margin of safety addresses uncertainties associated with inconclusive scientific and technical information available at the time of standard setting, and is meant to provide a reasonable degree of protection against hazards that research has not yet identified. The margin of safety is designed to prevent pollution levels that have been demonstrated to be harmful, as well as to prevent lower pollutant levels that may pose an unacceptable risk of harm, even if the risk is not precisely identified as to nature or degree. Health protection is achieved if the estimated worst-case exposure is below the relevant reference exposure level. In such a case, an adequate margin of safety exists between the predicted exposure and the estimated threshold dose for toxicity. (Ex. 2a, p. 4.7-2/3.)

Exposure to multiple toxic substances may result in health effects that are equal to, less than, or greater than effects resulting from exposure to the individual chemicals. Only a small fraction of the thousands of potential combinations of chemicals have been tested for the health effects of combined exposures. In conformance with California Air Pollution Control Officers Association (CAPCOA) guidelines, the health risk assessment assumes that the effects of each substance are additive for a given organ system (CAPCOA 1993, p. III-37). In those cases where the actions may be synergistic (where the effects are greater than the sum), this approach may underestimate the health impact. (Ex. 2a, p. 4.7-3.)

For carcinogenic substances, the health assessment considers the risk of developing cancer and assumes that continuous exposure to the cancer-causing substance occurs over a 70-year lifetime. The calculated risk is not meant to predict the actual expected incidence of cancer, but rather is a theoretical upper-bound number based on worst-case assumptions. In reality, the risk is generally too small to actually be measured. For example, the one in one million risk level represents a one in one million increase in the normal risk of developing cancer

over a lifetime, at whatever location is estimated to have the worst-case risk. *(Ibid.)*

Cancer risk is expressed in chances per million, and is a function of the maximum expected pollutant concentration, the probability that a particular pollutant will cause cancer (called "potency factors", and established by the California Office of Environmental Health Hazard Assessment), and the length of the exposure period. Cancer risks for each carcinogen are added to yield total cancer risk. The conservative nature of the screening assumptions used means that actual cancer risks are likely to be lower or even considerably lower than those estimated. *(Ibid.)*

The screening analysis is performed to assess worst-case risks to public health associated with the proposed project. If the screening analysis predicts no significant risks, then no further analysis is required. However, if risks are above the significance level, then further analysis, using more realistic site-specific assumptions would be performed to obtain a more accurate assessment of potential public health risks. *(Ibid.)*

Commission staff determines the health effects of exposure to toxic emissions based on impacts to the maximum exposed individual. This is a person hypothetically exposed to project emissions at a location where the highest ambient impacts were calculated using worst-case assumptions, as described above. (Exs. 2a, p. 4.7-4; 4A, p. 57/58.)

As described earlier, non-criteria pollutants are evaluated for short-term (acute) and long-term (chronic) noncancer health effects, as well as cancer (long-term) health effects. Significance of project health impacts is determined separately for each of the three categories. *(Ibid.)*

2. Construction Impacts

SJVEC's construction is anticipated to take place over a period of 22-28 months; Staff's assessment of chronic (long-term) health effects assumes continuous exposure to toxic substances over a significantly longer time period, typically from seven to 70 years. Potential risks to public health during construction may be associated with exposure to:

- toxic substances in contaminated soil disturbed during site preparation, and
- heavy equipment operation.[37] (Exs. 2a, p. 4.7-9; & 4A, p. 56.)

Applicant prepared a risk assessment under the Air Toxics Hot Spots Information and Assessment Act (RA) that evaluated potential health risks of the foregoing toxic pollutants. In addition, Applicant performed air dispersion modeling to estimate the maximum air concentration of diesel particulate matter at residential locations. Based upon this analysis, carcinogenic risk due to the maximum exposure to diesel exhaust during construction activities fell below thresholds applied to regulate toxic pollutant air emissions. In addition, the maximum concentration of diesel particulate matter in the air was found to be lower than applicable RELs. Because maximum diesel particulate concentration associated with construction activities was lower than the REL, construction emissions would not produce adverse cancer and noncancer health effects. (Exs. 2a, pp. 4.7-8/9; 4A, p. 56.)

a. Site Contamination

Site disturbance occurs during facility construction from excavation, grading, and earth moving. Such activities have the potential to adversely affect public health through various mechanisms, such as the creation of airborne dust, material being carried off-site through soil erosion, and uncovering buried hazardous

[37] Criteria pollutant impacts from heavy equipment operation and particulate matter from earth moving are examined in our **Air Quality** analysis.

substances. Applicant conducted a Phase I Environmental Site Assessment (ESA), and responded to Staff's request for a limited soil sampling and analysis at the site.[38] (Ex. 1, Vol. 2, App. 8.13A.)

Staff testified that:

- there is a strong likelihood that soils at the site are likely contaminated by hazardous waste;
- hazardous waste in the soils present a public health issue particularly in light of high asthma rates in the San Joaquin region; and
- workers and the public should be protected by insuring that any soil and dust disturbance from site preparation is minimized by imposition of conditions recommended in our sections on Air Quality, Worker Safety, and Waste Management. (2/19/03 RT 194:25-204:10, 225:18-226:22; *see* **Air Quality Conditions 3 & 5**; **Worker Safety Condition-2**; **Waste Management-6**.)

b. Heavy Equipment Operation

In order to mitigate potential impacts from particulate emissions during the operation of diesel-powered construction equipment, we have adopted Staff's recommendation that Applicant use ultra low sulfur diesel fuel and install soot filters on stationary diesel equipment. The operation of construction equipment creates air emissions from diesel-fueled engines. Diesel emissions are generated from sources such as trucks, graders, cranes, welding machines, electric generators, air compressors, and water pumps. (Exs. 2a, p. 4.7-9; 1, Vol. 2, App. 8.1D.)

Although diesel exhaust contains criteria pollutants such as nitrogen oxides, carbon monoxide, and sulfur oxides, it also includes a complex mixture of thousands of gases and fine particles. These particles are primarily composed of aggregates of spherical carbon particles coated with organic and inorganic

[38] Based on the results of the sampling and analysis, Staff concluded that a potential risk might exist to workers and/or the off-site public from soils containing arsenic and/or pesticides. The ESA's results and the sampling and analysis, and our findings are summarized in our section on **Waste Management**. (*See also* our discussion of **Air Quality Condition AQ-C3**.)

substances. Diesel exhaust contains over 40 substances that are listed by the USEPA as hazardous air pollutants and by the CARB as toxic air contaminants. Because of the many constituents in diesel exhaust as well as evidence that the particles themselves may have intrinsic toxic and carcinogenic properties, many researchers have used the particles to quantify exposure to whole diesel exhaust. (Ex. 2a, p. 4.7-9; see our discussion of **Air Quality Condition AQ-C3**.)

Exposure to high levels of diesel exhaust causes both short- and long-term adverse health effects. Short-term effects can include increased coughing, labored breathing, chest tightness, wheezing, and eye and nasal irritation. Long-term effects can include increased coughing, chronic bronchitis, reductions in lung function, and inflammation of the lung. Epidemiological studies also strongly suggest a causal relationship between high levels of occupational diesel exhaust exposure and lung cancer. (Ex. 2a, p. 4.7-9.)

Based on a number of health effects studies, the Scientific Review Panel on Toxic Air Contaminants (SRP) recommended a chronic REL for diesel exhaust particulate matter of 5 $\mu g/m^3$ and a cancer unit risk factor of $3x10^{-4}$ $(\mu g/m^3)^{-1}$. The SRP did not recommend a value for an acute REL, since available data in support of a value was deemed insufficient. On August 27, 1998, the CARB listed particulate emissions from diesel-fueled engines as a toxic air contaminant and approved SRP's recommendations regarding health effect levels. *(Ibid.)*

Applicant's analysis demonstrates a worst-case daily exhaust emissions of 10.0 lb/day PM_{10} from construction equipment and 54.9 lb/day PM_{10} from fugitive dust are predicted during the first 16 months of onsite construction (AFC Table 8.1D-1). Worst-case daily exhaust emissions of 15.0 lb/day PM_{10} from construction equipment and 19.5 lb/day PM_{10} from fugitive dust are predicted during the rest of onsite construction. Applicant's modeling applied these emission levels to determine the construction impacts on short-term ambient standards (24 hours or less). (Exs. 2a, p. 4.7-9; 1, Vol. 2, App. 8.1D.)

As noted earlier, the air dispersion modeling and assumptions that form the basis of Staff's screening risk analysis are designed to overestimate public health impacts, and actual risks are likely to be much lower than those calculated. Staff agrees with the conclusion that the maximum modeled annual average concentration of 4.05 $\mu g/m^3$ at the point of maximum impact is above the 10 in one million level considered to be significant under the District's CEQA guidelines. This conclusion forms the basis of Staff's recommendation that Applicant should install soot filters on stationary diesel equipment during construction, and we have adopted that recommendation. (Exs. 2a, p. 4.7-13; 1, Vol. 2, App. 8.1D; **Air Quality Condition AQ-C3**.)

3. Operational Impacts

During operation, potential public health risks are related to:

- natural gas combustion emissions from the gas turbines and duct burners, and non-combustion emissions from the cooling tower;
- storage and use of hazardous materials at the proposed facility. (Exs. 2a, p. 4.7-9; 1, Vol. 1, pp. 8.1-6, 24/25, 8.6-4; 4A, p. 57; *see above* **Public Health Tables 1 & 2**.)

The point of maximum offsite impact for cancer risk was located about 0.5 miles south of the project site, and noncancer chronic hazard index was located a few feet south of the project fence-line. **Table 3** below estimates risks and hazards for all four sources of toxic air contaminants:

PUBLIC HEALTH Table 3
Estimated Hazards Risks for all four Sources of Toxic Air Contaminants:

Source	Risk (in one million)	Chronic HI
Turbine (generator) and HRSG stack	0.04	0.007
Auxiliary boiler	0.0015	0.002
Cooling tower	0.0091	0.001
Diesel fire-water pump	0.15	0.0008
Emergency generator	0.0082	0.003
Maximum from all sources	0.21*	0.009*

*Maximum does not correspond to the sum of the individual risk and hazard from the five sources because the location of the maximum risk and hazard from each source is different.
Source: (Ex. 2a, p. 4.7-14.)

The screening health risk assessment (HRA) for the project, including combustion and noncombustion emissions, resulted in a maximum acute hazard index of 0.35 at the maximum impact location. As **Table 4** shows below, both acute and chronic hazard indices are under the REL of 1.0, indicating that no short- or long-term adverse health effects are expected.

PUBLIC HEALTH Table 4
Operation Hazard/Risk

Type of Hazard/Risk	**Hazard Index/Risk**	**Significance Level**
Acute Noncancer	0.35	1.0
Chronic Noncancer	0.009	1.0
Individual Cancer	0.21 in one million	10.0×10^{-6}

Source: (Ex. 2a, p. 4.7-14.)

Table 3 demonstrates that total worst-case individual cancer risk is estimated to be 0.21 in one million at the location where long-term pollutant concentrations are calculated to be the highest, and is at the same location as the maximum chronic hazard, about 0.5 miles southeast of the proposed site. Total chronic Hazard Index and acute Hazard Index are both well below the level of significance (much less than 1.0). (Ex. 2a, p. 4.7-14.)

Staff conducted an independent calculation of the estimated risk and hazard due to emissions from the two major sources: the HRSG stacks and the cooling towers. Staff used the most recent Cal-EPA Office of Environmental Health Hazard Assessment (OEHHA) toxicity values. The results essentially matched Applicant's values, with only minor differences found due to the recent updating of toxicity values by OEHHA in December 2001, which was after the AFC prepared HRA. (Ex. 2a, p. 4.7-14/15.)

Therefore, Staff has verified that the calculations conducted by Applicant are accurate. Applicant's HRA demonstrates that the estimates of lifetime cancer and potential non-cancer risks associated with chronic or acute exposures to operational toxic pollutants fall below thresholds used for regulating these emissions. Accordingly, we find that there are no public health impacts to be anticipated from toxic pollutant emissions from the proposed SJVEC facility. (Exs. 2a, p. 4.7-14/15; 4.A, pp. 57/58.)

4. Cumulative Impacts

The maximum cancer risk for the SJVEC facility is 0.21 in one million, about 0.5 miles south of the proposed site. In comparison, the CARB toxic air monitoring station on First Street in Fresno reported a year 2000 background cancer risk of 225 in one million. And in the Los Angeles area, the SCAQMD estimated the average lifetime cancer risk for inhalation of ambient air to be 1,400 in one million based on 1998-1999 ambient average toxic concentration data. The worst-case long-term health impact from SJVEC (0.009 hazard index) is well below the significance level of 1.0 at the location of maximum impact. At this level, we agree with Staff's conclusion, which is that no significant cumulative health impacts are anticipated. As with cancer risk, long-term hazard would be lower at all other locations and cumulative impacts at other locations would also be less than significant. Even in the unlikely event that worst-case emissions from an existing facility were to coincide both geographically and temporally with

SJVEC's emissions at the location of maximum impact, the overall long-term health outlook would not change for anyone. Thus, the SJVEC project will not result in any significant cumulative cancer or chronic noncancer health impacts (Exs. 2a, p. 4.7-15; 4A, 58.)

COMMISSION DISCUSSION

The evidence of record fully supports the conclusion that the SJVEC will not cause any adverse health effects to the surrounding region. We are persuaded that the extremely conservative nature of the methodology provides an abundant margin of error in favor of providing the maximum protection for the public's health. We find that as we have conditioned the proposed project, Applicant has carried its burden of proof on this question. The Commission therefore concludes that project emissions of non-criteria pollutants do not pose a significant direct, indirect, or cumulative adverse public health risk.

FINDINGS AND CONCLUSIONS

Based on the evidence of record, we make the following findings and conclusions:

1. Potential risks to public health during construction may be associated with exposure to toxic substances in contaminated soil disturbed during that period of time when site preparation, and heavy equipment operation occurs.

2. Normal operation of the proposed project will result in the routine release of criteria and non-criteria pollutants that have the potential to impact adversely public health.

3. Applicant performed a Phase 1 ESA and soil sampling analysis. Based on the results of the sampling and analysis, Staff concluded that a potential risk might exist to workers and/or the off-site public from soils containing arsenic and/or pesticides. The results of the ESA, and our findings and conditions to mitigate the potential impacts are set forth in our sections on **Air Quality and Waste Management**.

4. Acute and chronic non-cancer health risk from SJVEC's emissions during construction and operational activities are insignificant.

5. The potential risk of cancer from SJVEC's emissions during construction and operational activities is insignificant.

6. The SJVEC project will not result in any significant cumulative cancer or chronic noncancer health impacts.

CONDITIONS OF CERTIFICATION

PUBLIC HEALTH-1 The project owner shall develop and implement a cooling tower Biocide Use and Monitoring program to ensure that the potential for bacterial growth is kept to a minimum. The Biocide Use and Monitoring program shall incorporate, as applicable, the Best Practices and Recommendations for Minimization of Risks Associated with Legionella as outlined in the Cooling Tower Technology Institute February 2000 publication titled Legionellosis, Guideline: Best Practices for Control of Legionella. The Biocide Use and Monitoring Program shall specifically address full- and part-load plant operation, and short and long-term shutdowns.

Verification: At least 60 days prior to the commencement of cooling tower operations, the Biocide Use and Monitoring program shall be provided to the CPM for review and approval.

C. WORKER SAFETY AND FIRE PROTECTION

Industrial workers use process equipment and hazardous materials on a daily basis. Accidents involving relatively small amounts of material can result in serious injuries. This topical analysis assesses the completeness and adequacy of the measures proposed by the Applicant to comply with applicable worker health and safety requirements.

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Worker Safety

Staff uses the phrase "Safety and Health Program" to refer to the measures that must be taken to ensure compliance with applicable Worker Safety LORS during the construction and operational phases of the SJVEC project. Staff concluded that:

- the SJVEC's AFC includes adequate outlines of each of the required programs;
- prior to SJVEC's construction detailed programs and plans must be provided pursuant to condition of certification **WORKER SAFETY-1**. (Exs. 1, Vol. 1, §.8.7.4.3.1; 2a, p. 4.14-5/6; 3J, p.115.)

SJVEC's Operations and Maintenance Safety and Health Program must be prepared upon completion of construction and prior to operations. Staff concluded that:

- the AFC includes adequate outlines of the major components of an Operations Safety Program;
- Prior to SJVEC's operation, all detailed programs and plans must be provided pursuant to condition of certification **WORKER SAFETY-2**. (Exs. 1, Vol. 1, § 8.7.4.3.2; 2a, p. 4.14-6/9; 3J, pp. 115/116.)

We concur and find that the preparation and execution of the required construction and operations programs, including provision of appropriate worker safety training, will comport with all LORS and adequately serve to protect

SJVEC's workers. Applicant and Staff agree on the enumerated conditions of certification below, which we adopt. (Exs. 2a, p. 4.14-11/12; 3J, p. 113.)

2. Fire Protection

The Fresno County Fire Protection District (FCFPD) currently provides fire support services for the site, and would continue to do so following construction of the proposed SJVEC facility. Station 95, located in the community of Tranquility, approximately 4.8 miles from the project site, provides fire protection for all of the City of San Joaquin. This is the closest station to the site, manned by two fire-fighters, and would be assigned as the off-site first responder to the SJVEC. (Ex. 2a, p. 4.14-4.)[39]

FCFPD response time is estimated to be approximately 8-10 minutes. In the event of a building fire on the site, CAL-OSHA regulations prevent entry to a burning building unless there are at least four fire-fighters at the site. In that case, station 96 from the City of Mendota, would provide the backup fire suppression support. Station 98's response time is estimated to be 15 minutes longer; therefore, total response time would increase to 23-25 minutes. Fresno County does not have a HazMat team. However, the FCFPD can be called upon for help in the event of a spill. FCFPD's fire-fighters are prepared to assist with spill-identification and with evacuation, but not with the clean-up process.[40] *(Ibid.)*

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[39] The project will rely on both onsite fire protection systems and local fire protection services. The onsite fire protection system provides the first line of defense for small fires. The FCFPD's fire support services, including trained firefighters and equipment, would be required for a sustained response in the event of a major fire. (Ex. 2a, p. 4.14-10.)

[40] To mitigate our concern regarding the lack of a county HazMat team, we require in our section on **Hazardous Materials** that the project owner contract with a hazardous spill response company that will respond to any spill on-site. Any private company so contracted would be responsible for the clean-up work. (Ex. 2a, p. 4.4-15 & **Condition HAZ-11**.)

The SJVEC project will meet applicable fire protection and suppression requirements, the elements of which include:

- both fixed and portable fire extinguishing systems;
- two sources of available fire fighting water;
- a dedicated minimum supply of 240,000 gallons of fire fighting water stored in a tank as the primary source, and a secondary source from the City of San Joaquin domestic water system;
- fire hydrants with hose stations spaced at 300-foot intervals around the facilities;
- sprinkler and fixed spray systems designed and installed according to applicable LORS;
- hand held portable fire extinguishers of the appropriate size and rating located throughout the facility in accordance with appropriate LORS;
- the combustion turbine-generators and accessory equipment would be protected by a fire protection system that uses FM 200 as the chemical fire-fighting agent;
- FM 200, which is a non-halon chemical fire retardant approved by the USEPA for use in occupied structures;
- fire and heat detection sensors in all compartments that would provide an alarm on the control panel, trip the combustion turbine, turn off and close ventilation openings, and automatically release an adequate concentration of the FM 200;
- a deluge spray system provided for the generator transformers and auxiliary power transformer in the event of a fire;
- deluge water is to be fed by the underground fre water/domestic water system; and
- fixed fire protection water spray systems would be provided for the STG bearings and lube oil piping and storage area. (Exs. 1, Vol. 1, p. 2-15, § 2.2.12; 2a, p. 4.14-10.)

Staff concluded that:

- the storage tank water would provide two hours of protection from the onsite worst-case single fire;
- this fire fighting water supply and an on-site electric fire-water pumping system (with diesel generator back-up) would provide more than an adequate quantity of fire-fighting water to yard hydrants, hose stations, and water spray and sprinkler systems. (Exs. 2a, p. 4.14-10.)

We agree with Staff's assessment and find that the foregoing systems are adequate to provide fire protection for workers at the proposed SJVEC facility.

3. Cumulative Impacts

Staff reviewed the potential for SJVEC's construction and operation, combined with other pending large facilities that have either been approved by the applicable jurisdiction or have applied for approval, to result in cumulative impacts on the fire and emergency service capabilities of the FCFPD. There are no known pending industrial or commercial projects in the San Joaquin area, and therefore the SJVEC project would not create a significant cumulative impact. (Ex. 2a, p. 4.14-5.)

FINDINGS AND CONCLUSIONS

Based upon the evidence of record regarding the topic of worker safety, we find and conclude as follows:

1. Applicant will be required to provide the written components of the Construction and Operations Safety and Health Programs to the CPM and to the FCFPD prior to construction and operation of the project, to confirm the adequacy of the proposed worker safety and fire protection measures to meet all applicable LORS.

2. No construction or operation will commence on the SJVEC project until all applicable training and risk management plans are implemented.

3. Compliance with existing applicable LORS will adequately assure protection of worker health and safety during SJVEC's construction and operation phases.

4. The Fresno County Fire Protection District currently provides fire support services for the site, and would continue to do so following construction of the proposed SJVEC facility.

5. Station 95 located in the community of Tranquility, approximately 4.8 miles from the project site, provides fire protection for all of the City of San Joaquin,

is the closest station to the site, is manned by two fire-fighters, and would be assigned as the off-site first responder to the SJVEC.

6. The SJVEC project would not create a significant cumulative impact.

7. The Conditions of Certification below require the submission and review of safety and health programs for SJVEC's construction and operation phases.

9. Assuming compliance with the Conditions of Certification contained in this Decision, the SJVEC project will comply with all LORS intended to protect worker health and safety and identified in the appropriate portion of Appendix A of this Decision.

We therefore conclude that the SJVEC project will adequately address worker safety and fire protection matters during the construction and operation phases.

CONDITIONS OF CERTIFICATION

WORKER SAFETY-1 The project owner shall submit to the CPM a copy the Project Construction Safety and Health Program containing the following:

1. A Construction Safety Program;
2. A Construction Personal Protective Equipment Program;
3. A Construction Exposure Monitoring Program;
4. A Construction Emergency Action Plan; and
5. A Construction Fire Protection and Prevention Plan.

Protocol: The Construction Safety Program, the Personal Protective Equipment Program, and the Exposure Monitoring Program shall be submitted to the CPM for review and approval concerning compliance of the program with all applicable Safety Orders. The Construction Fire Protection and Prevention Plan and Emergency Action Plan shall be submitted to the FCFPD for review and comment prior to submittal to the CPM for approval.

Verification: At least thirty (30) days prior to site mobilization, the project owner shall submit to the CPM for review and approval a copy of the Project Construction Safety and Health Program. The project owner shall provide a letter from the FCFPD stating that the department has reviewed and commented

on the Construction Fire Protection and Prevention Plan and the Emergency Action Plan.

WORKER SAFETY–2 The project owner shall submit to the CPM a copy of the Project Operations and Maintenance Safety and Health Program containing the following:

1. An Operation Injury and Illness Prevention Plan;
2. An Emergency Action Plan;
3. A Hazardous Materials Management Program;
4. An Operations and Maintenance Safety Program;
5. A Fire Protection and Prevention Program (8 CFR § 3221); and
6. A Personal Protective Equipment Program (8 CFR § 3401-3411).

Protocol: The Operation Injury and Illness Prevention Plan, Emergency Action Plan, and the Personal Protective Equipment Program shall be submitted by the project owner to the Cal/OSHA Consultation Service for review and comment concerning compliance with all applicable Safety Orders.

The Operation Fire Protection Plan and the Emergency Action Plan shall also be submitted by the project owner to the FCFPD for review and comment.

Verification: At least 30 days prior to the start of operation, or an alternate time frame mutually agreed to by the CPM and the project owner, the project owner shall submit to the CPM a copy of the Project Operations and Maintenance Safety and Health Program.

D. HAZARDOUS MATERIALS MANAGEMENT

Public safety concerns may arise from the construction and operation of a proposed project such as the SJVEC, especially with respect to the handling, transportation, and storage of hazardous materials. Therefore, the Commission examines each such power plant proposal to determine if the facility is designed to ensure the safe handling and storage of these materials.[41]

SUMMARY OF THE EVIDENCE

A. Use and Storage of Hazardous Materials

During project construction, hazardous materials to be used in relatively small quantities will include gasoline, diesel fuel, motor oil, hydraulic fluid, solvents, cleaners, sealants, welding flux, various lubricants, paint; and paint thinner. These materials will present no hazard for off-site consequences. (Ex. 2a, p. 4.4-6.)

No acutely toxic hazardous materials will be used onsite during construction. None of the hazardous materials to be used during construction poses significant potential for off-site impacts due to the small quantities on-site, their relative toxicity, and/or their lack of environmental mobility. For example, fuels such as fuel oil #6, mineral oil, lube oil, and diesel fuel are all of very low volatility and represent limited off-site hazard even in larger quantities. Although the use of hydrogen gas poses a risk of explosion, the moderate quantity present and the results of previous modeling of the blast effects of a hydrogen tank explosion demonstrate that any blast effect would be confined to the site and not

[41] Related issues are also addressed in the Waste Management, Worker Safety, and Traffic and Transportation portions of this Decision. The AFC provides a summary list of hazardous materials, their uses, health effects, types of storage and storage locations. (Ex. 1, Vol. 1, pp. 8.12-7/18, Tables 8.12-3/6.)

significantly impact off-site. The Applicant will be required to store the hydrogen cylinders in an area isolated from combustion sources. The tanks and piping that are near potential traffic hazards would be protected from vehicle impact by traffic barriers. Therefore, we conclude that as to the construction phase, environmental impacts are likely to be less than significant. (Exs. 2a, p. 4.4-6/7; 3I, pp. 30-31; *see* **HAZ-10**.)[42]

In regards to seismic safety issues, the site is located in Seismic Risk Zone 3. Therefore, Staff conducted an analysis of the codes and standards, which should be followed to adequately design and build storage tanks, containment areas, and the natural gas pipeline in order to withstand a large earthquake. Staff notes that the proposed facility will be designed and constructed to the applicable standards of the:

- 1997 Uniform Building Code for Seismic Zone 3;
- 1998 California Building Code;
- CPUC General Order 112E;
- Title 49, California Code of Regulations, section 192; and
- The Fresno County Environmental Health Department (FCEHD), who is the Certified Unified Program Authority (CUPA) with responsibility to review RMPs and Hazardous Materials Business Plans. (Ex. 2a, p. 4.4-2, 12/13.)

We find that these measures are adequate to protect from the release of hazardous materials in case of a seismic event.

Applicant has proposed to store five hazardous materials at the SJVEC in quantities exceeding reportable quantity (RQ) amounts.[43] They are:

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[42] The parties were able to reach consensus on all conditions of certification, which we enumerate below. (*Cf* .Ex 2 O, pp. 15-17 & 3 I, pp. 29-30.)

[43] Although no natural gas is stored, the SJVEC project will involve the construction and operation of a natural gas pipeline and handling of large amounts of natural gas. Natural gas poses some risk of both fire and explosion. We find, however, that the risk of a fire and/or explosion on and off-site can be reduced to insignificant levels through adherence to applicable codes and development and implementation of effective safety management practices. Further, we find that

1. aqueous ammonia (28% solution by weight);
2. sodium hypochlorite;
3. sodium hydroxide;
4. sulfuric acid; and
5. hydrochloric acid (HCl). (Exs. 2a, p. 4.4-7; 3 I, p. 31; *see* California Health and Safety Code, section 25532 (j); **Condition HAZ-1**.)

Staff concluded that:

- aqueous ammonia and sodium hypochlorite would have a low potential to affect the off-site public because of low vapor pressures and concentrations;
- accidental mixing of sodium hypochlorite with acids or aqueous ammonia could result in toxic gases;
- given the large volumes of both aqueous ammonia (approximately 52,000 gals.) and sodium hypochlorite (8,000 gals.) proposed for storage, the chances for accidental mixing of the two, particularly during transfer from delivery vehicles to storage tanks, should be reduced as much as possible;
- measures to prevent such mixing are extremely important and will be required as an additional section within the required Safety Management Plan for delivery of aqueous ammonia; and
- Applicant proposes to separate incompatible materials to prevent accidental mixing. (Ex. 2a, p. 4.4-7/8.)

Staff's and Applicant's analysis concluded that:

- all hazardous materials will be stored and handled in accordance with applicable codes and regulations; and
- the SJVEC's use, storage, and transportation of hazardous materials would result in no significant risk to the offsite public. We concur. (Exs. 2a, p. 4.4-17; 3 I, p. 33.)

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only aqueous ammonia and natural gas may pose a risk of off-site impacts. Although use of hydrogen gas poses a risk of explosion, Staff concluded that the moderate quantity present at the SJVEC site and the results of previous modeling of the blast effects of a hydrogen tank explosion demonstrate that any blast effect would be confined to the site and would not significantly impact off-site. Moreover, Applicant will be required to store the hydrogen cylinders in an area isolated from combustion sources. The tanks and piping that are near potential traffic hazards would be protected from vehicle impact by traffic barriers. (Ex. 2a, pp. 5.4-/7-10; 2/19 RT 113:10-117:14; *see* **Conditions HAZ-6 & 7** & **10**.)

1. Aqueous Ammonia

Aqueous ammonia would be used in controlling NOx emissions from SJVEC's combustion of natural gas. Large amounts of aqueous ammonia (two 30,000-gallon storage tanks with a maximum of 26,000 gallons stored in each) would be used and stored on-site. Because of aqueous ammonia's moderate vapor pressure, its accidental release, even without interaction with other chemicals, can result in large down-wind concentrations and the formation of an ammonia gas cloud.[44] To mitigate this impact, Applicant will provide a secondary containment structure equipped with vapor detection equipment to detect escaping ammonia and activate alarms in case of an inadvertent release. (Exs. 2a, p. 4.4-10; 3 I, p. 31.)

To assess and mitigate potential impacts associated with an accidental release of aqueous ammonia, Staff typically evaluates where four "bench mark" exposure levels of ammonia gas would occur off-site. These include:

- the lowest concentration posing a risk of lethality, 2,000 parts per million (ppm);
- the Immediately Dangerous to Life and Health (IDLH) level of 300 ppm;
- the Emergency Response Planning Guideline (ERPG) level 2 of 200 ppm, which is also the RMP level 1 criterion used by the USEPA and California; and
- the level considered by the Energy Commission staff to be without serious adverse effects on the public for a one-time exposure of 75ppm. (Ex. 2a, p. 4.4-10/11.)[45]

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[44] However, as with aqueous sodium hypochlorite, the use of aqueous ammonia poses far less risk instead of the much more hazardous anhydrous ammonia (i.e. ammonia that is not diluted with water) due to its greater volatility as a highly pressured gas. (Ex. 2a, p. 4.4-7, 10; 2/19 RT 104:3-105:24.)

[45] A detailed discussion of Staff's exposure criteria and their applicability to different populations and exposure-specific conditions is provided in Appendix A to Staff's HazMat analysis. We also refer to Staff's Appendices in our conditions of certification. (Ex. 2a, pp. 4.4-22/28; *see e.g.,* **HAZ-1**.)

If the potential exposure associated with a potential release exceeds 75 ppm at any public receptor, Staff will presume that the potential release poses a risk of significant impact. In addition, Staff may assess the probability of occurrence of the release and/or the nature of the potentially exposed population. Based on such analysis, Staff may determine that the likelihood and extent of potential exposure are not sufficient to support a finding of a potentially significant impact. (Ex. 2a, p. 4.4-11.)

Applicant's data supplied to Staff describes the modeling parameters used for aqueous ammonia's worst-case and alternative-case accidental releases. The worst-case release is associated with a failure of the ammonia storage tank so that it empties within 10 minutes into a 1,962 square foot containment area. An alternative scenario is a failure of a supply truck loading hose spilling approximately 33 gallons of aqueous ammonia. In conducting these two scenario analyses, Staff and Applicant:

- assumed that spilled material would be contained in the covered basin below the storage tank and below the tanker truck pad;
- assumed winds of 1.5 meter per second and category F stability would exist at the time of the accidental release;
- accepted USEPA's SLAB air dispersion model to estimate airborne concentrations of ammonia. This model is designed to predict the maximum possible impacts based on distance from the storage tank without regard to specific direction of transport. (Ex. 2a, p. 4.4-11.)

The modeling demonstrated that off-site airborne ammonia concentrations would not exceed Staff's significant criteria of (75 ppm) at any off-site location: concentrations exceeding 75 ppm would be confined within the project site (92 meters, or 302 feet, from the storage tanks for the worst-case). Staff's independent review concluded that Applicant:

- applied standard appropriate methods and assumptions;
- accurately modeled the potential airborne ammonia concentrations during an accidental release; and
- SJVEC's potential accidental release of aqueous ammonia would not cause a significant impact. (Ex. 2a, p. 4.4-11.)

2. Sodium Hypochlorite

Sodium hypochlorite is a biocide to be used in treating SJVEC's circulating water and process water pretreatment systems. It has a very low vapor pressure and therefore poses no risk of atmospheric transport off-site. Sodium hypochlorite does pose a risk of soil and water contamination. However, it will be stored within an impervious secondary containment structure that will prevent such contamination. Staff concluded, and we concur, that SJVEC's use of sodium hypochlorite poses no risk of impacting surrounding populations in case of an accidental release. (Exs. 1, Vol. 1, p. 8.12-9, Table 8.12-3; 2a, p. 4.4-7; 3 I, p. 31; *see* **Condition Public Health 1**.)

3. Sodium Hydroxide

Sodium hydroxide will be used primarily to remove hardness in the reactor/clarifier softener. The system will consist of an 8,000-gallon storage tank, chemical metering pumps, and a leak detection and alarm system. The storage tank will be located above a concrete containment area with sufficient capacity to contain the full tank contents plus accumulated rainfall for 24 –hours during a 25-year storm. The volumes of sodium hydroxide stored at the SJVEC site would be present in excess of the Reportable Quantity (RQ) and therefore must be included in Applicant's Hazardous Materials Business Plan (HMBP) and the Risk Management Plan (RMP). Staff concluded that sodium hydroxide does not pose a risk of off-site impacts because of its relatively low vapor pressure, and that any spill would be confined to the site. (Exs. 2a, p. 4.4-7; 3 I, p. 31; **HAZ-1**.)

4. Sulfuric acid

Sulfuric acid will be fed into the circulation water system in proportion to makeup water flow for alkalinity reduction. The acid feed equipment will consist of an acid storage tank, chemical metering pumps, a leak detection system, and an alarm

system. Two 8,000-gallon storage tanks will be located near the cooling tower circulating water pumps above a concrete epoxy-lined confinement area. The containment area would be designed with sufficient capacity to contain the full tank contents plus accumulated rainfall for 24–hours during a 25-year storm. (Ex. 3 I, p. 31.)

The amount of sulfuric acid that would be stored on site would trigger the RQ, Sulfuric acid would not pose a risk of off-site impacts, because it has a relatively low vapor pressure and thus emissions from spills would be confined to the site. Because of public concern at another proposed energy facility in 1995, staff conducted a quantitative assessment of the potential for impact associated with sulfuric acid use, storage, and transportation. Staff found no hazard would be posed to the public. However, should a fire occur in the immediate vicinity of the sulfuric acid tank, the potential exists for the tank to rupture and for sulfuric acid to become vaporized and migrate off-site. In order to protect against risk of fire causing such an accidental release, Staff has recommended an additional condition, which requires the project owner to ensure that no combustible or flammable materials would be stored or used within 100 feet of the sulfuric acid tank. (Exs. 1, Vol. 1, Figure 2.2-1; 2a, p. 4.4-7; *see* **Conditions HAZ-1 & 5**.)

5. HCl

HCl is used to clean the HRSGs. HCl storage would be in excess of the RQ every three to five years and at SJVEC's start-up. During the interim periods, HCl stored would be less than the RQ. Staff concluded that:

- HCl would be used infrequently and thus the risk of accidental release would be very small;
- contractors using HCl have a great deal of experience in safely handling the volume of use proposed at the SJVEC; and
- it had not found a single incidence of HCl's accidental release at a CEC-certified gas-fired power plant in California during HRSG cleaning. (Ex. 2a, p. 4.4-7.)

B. Transportation of Hazardous Materials

Many hazardous materials including aqueous ammonia, sulfuric acid, and sodium hypochlorite will be transported to the proposed SJVEC via tanker truck. Staff concluded that:

- aqueous ammonia poses the predominant transport risk;
- aqueous ammonia would be delivered to the proposed facility only in DOT-certified, high integrity vehicles designed for hauling caustic materials such as aqueous ammonia, with a design capacity of 7,500 gallons (**Condition HAZ-8**);
- the transportation of similar volumes of hazardous materials on the nation's highways is not unique nor an infrequent occurrence;
- the frequency of release for transportation of hazardous materials in the U.S. is between 0.06 and 0.19 releases per million miles traveled on well-designed roads and highways. The maximum usage of aqueous ammonia each year of operation of the proposed SJVEC would, at this risk level, result in a negligible risk to those residing in the project area;
- it is appropriate to rely on the extensive regulatory program that applies to driver competence, and the shipment of hazardous materials on California Highways to ensure safe handling in general transportation;
- Applicant's transportation analysis appropriately focused on the project area after the delivery vehicle leaves the main highway (Appendix 8.12A);
- U.S. Department of Transportation data demonstrate that the actual risk of a fatality over the past five years from all modes of hazardous material transportation (rail, air, boat, and truck) was approximately 0.1 in one million;
- the risk of exposure to significant concentrations of aqueous ammonia during transportation to the facility are insignificant because of the remote possibility of accidental release of a sufficient quantity to present a danger to the public; and
- transportation of aqueous ammonia to the proposed facility presents a risk of accident and exposure that is less than significant. (Ex. 2a, p. 4.4-11/12.)

C. Cumulative Impacts

Staff concluded that Applicant's proposed use of aqueous ammonia at the SJVEC facility would present no cumulative offsite impacts from a hazardous materials accident. We agree that with the mitigation adopted herein, the SJVEC's construction and operation would not contribute to any cumulative impact. (Ex. 2a, p. 4.4-13.)

FINDINGS AND CONCLUSIONS

Based on the evidence of record concerning the topic area of Hazardous Materials Management, we find and conclude as follows:

1. SJVEC will use hazardous and acutely hazardous materials at the proposed SJVEC facility.

2. The California Accidental Release Prevention Program (Cal-ARP) directs owners of facilities such as the SJVEC that will store or handle specific hazardous materials in quantities that exceed specified thresholds for each material, to develop a Risk Management Plan that must be submitted to appropriate local authorities, the USEPA, and the designated local Administering Agency for review and approval.

3. The proposed SJVEC and appurtenant facilities will be designed in accordance with applicable seismic area three codes and standards in order to withstand a large earthquake.

4. Hazardous materials (such as gasoline, diesel fuel, motor oil, hydraulic fluid, solvents, cleaners, sealants, welding flux, various lubricants, paint; and paint thinner) to be used during the construction phase of SJVEC will pose a less than significant impact on the environment.

5. Hazardous materials to be stored, handled, and used in reportable quantities during the operation phase of SJVEC include aqueous ammonia, sodium hydroxide, and sulfuric acid.

6. Staff conducted a quantitative assessment of the potential for impact associated with sulfuric acid use, storage, and transportation, and found that no hazard would be posed to the public.

7. The principal types of offsite potential public health and safety hazards associated with operational hazardous materials are the accidental release of ammonia gas, and fire and explosion from natural gas.

8. Large amounts of aqueous ammonia (two 30,000-gallon storage tanks with a maximum of 26,000 gallons stored in each) would be used and stored on-site at the SJVEC.

9. A catastrophic release of aqueous ammonia from on-site storage tanks would present an insignificant impact for off-site receptors.

10. SJVEC's use of hydrochloric acid, sulfuric acid, sodium hydroxide, sodium hypochlorite; and hydrogen gas pose insignificant risks of impacting surrounding populations in case of an accidental release or explosion.

11. Many hazardous materials including aqueous ammonia, hydrochloric acid, sulfuric acid, sodium hydroxide, sodium hypochlorite, and hydrogen will be transported to the proposed SJVEC facility via tanker truck.

12. Risks associated with transportation of aqueous ammonia and other hazardous materials to the SJVEC site are insignificant.

13. 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.

14. The proposed project will not contribute to a cumulative risk to the public health and safety.

15. Implementation of the Conditions of Certification below will ensure that the proposed project will comply with the laws, ordinances, regulations, and standards related to hazardous materials management as specified in the appropriate portion of Appendix A of this Decision.

We therefore conclude that the SJVEC's use of hazardous materials will not create or contribute to any significant adverse public health and safety impacts from the handling or storage of hazardous materials.

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 C below (with the exception that aqueous

ammonia will be used), or in greater quantities than those identified by chemical name in Appendix C to the Staff Assessment (Ex. 2a), unless approved in advance by the Fresno County Environmental Health Department and 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 concurrently provide a Business Plan and a Risk Management Plan to the Fresno County Environmental Health Department and the CPM for review at the time the plans are first submitted to the U.S. Environmental Protection Agency. The project owner shall include all recommendations of the Fresno County DEH and the CPM in the final document. A copy of the final plans, including all comments, shall be provided to the CPM once approved by the Fresno County DEH.

Verification: At least 60 days prior to handling reportable quantities of any hazardous material to the site, the project owner shall provide a copy of a final Business Plan approved by the Fresno County DEH to the CPM. At least 60 days prior to the delivery of aqueous ammonia the project owner shall provide the final RMP listed above and accepted by the Fresno County DEH to the CPM for approval.

HAZ-3 If aqueous ammonia is used, the project owner shall develop and implement a Safety Management Plan (SMP) for delivery of aqueous ammonia. The SMP shall include a section describing all measures to be implemented to prevent mixing of aqueous ammonia with incompatible hazardous materials.

If hydrogen is used, the project owner shall develop and implement an SMP for delivery of hydrogen. The SMP for hydrogen shall include a section containing specifics about the storage and handling of hydrogen, to include a plot plan describing the location of the storage, and of other flammable materials.

The various SMPs may be incorporated into one document, and shall include, in addition to the sections, sections on:

- Safety procedures,
- Protective equipment requirements,
- Required training, and
- Safety checklists.

The SMP shall be submitted to the CPM for approval.

Verification: At least sixty (60) days prior to the delivery of ammonia to the facility, the project owner shall provide safety management plan(s) as described above to the CPM for review and approval.

HAZ-4 The aqueous ammonia storage facility shall be designed to either the ASME Pressure Vessel Code or ANSI K61.6 or to API 620. In either case, a secondary containment basin shall be constructed to be capable of holding either 125 percent of the storage volume or the volume of the tank plus the volume associated with 24 hours of rain assuming the 25-year storm as specified in the AFC.

Verification: At least sixty (60) days prior to delivery of ammonia to the facility, the project owner shall submit final design drawings and specifications for the ammonia storage tank and secondary containment basin to the CPM for review and approval.

HAZ-5 The project owner shall ensure that no combustible or flammable material is stored within 100 feet of the sulfuric acid tank.

Verification: At least sixty (60) days prior to receipt of sulfuric acid on-site, the Project Owner shall provide copies of the facility design drawings showing the location of the sulfuric acid storage tank and the locations where combustible or flammable materials will be stored.

HAZ-6 The project owner shall require that the gas pipeline undergo a complete design review and detailed inspection 30 years after initial startup and every 5 years thereafter.

Verification: At least 30 days prior to the initial flow of gas in the pipeline, the project owner shall provide to the CMP for review and approval an outline of the plan to accomplish a full and comprehensive pipeline design review. The full and complete plan shall be prepared and submitted to the CPM for review and approval, not less than one year before the plan is implemented by the project owner.

HAZ-7 After any significant seismic event in the area where surface rupture occurs within one mile of the pipeline, the gas pipeline shall be inspected by the project owner.

Verification: At least thirty (30) days prior to the initial flow of gas in the pipeline, the project owner shall provide a detailed plan to accomplish a full and comprehensive pipeline inspection in the event of a significant earthquake to the CMP for review and approval. This plan shall be amended, as appropriate, and submitted to the CPM for review and approval, at least every five years.

HAZ-8 The project owner shall direct all vendors delivering aqueous ammonia to the site to use only tanker truck transport vehicles that meet or exceed the specifications of DOT Code MC-307.

Verification: At least 60 days prior to receipt of aqueous ammonia on site, the project owner shall submit copies of the notification letter to supply vendors indicating the transport vehicle specifications to the CPM for review and approval.

HAZ-9 The project owner shall direct all vendors delivering any hazardous material to the site to use only the route approved by the CPM--I-5 to Manning Ave. to Colusa Ave. to Cherry Lane and then into the facility. The project owner shall obtain approval of the CPM if an alternate route is desired.

Verification: At least 60 days prior to receipt of any hazardous materials on site, the project owner shall submit copies of the required transportation route limitation direction to the CPM for review and approval.

HAZ-10 The project owner shall ensure that no combustible or flammable material is stored aboveground within 50 feet of the hydrogen cylinders.

Verification: At least 60 days prior to receipt of hydrogen gas on-site, the project owner shall provide copies of the facility design drawings showing the location of the hydrogen gas cylinders and the location of any tanks, drums, or piping containing any combustible or flammable material and the route by which such materials will be transported through the facility.

HAZ-11 The project owner shall contract with a hazardous spill response company that will respond to any spill on-site. The contract shall state the conditions, procedures, and estimated response time that shall govern the manner in which this contractor shall be contacted and with the specific number of personnel who shall respond.

Verification: At least 30 days prior to the receipt of any hazardous materials on-site the project owner shall provide copies of the contract to the CPM for review and approval and to the Fresno County Fire Protection District for information.

E. WASTE MANAGEMENT

In this subject area, the Applicant and Staff witnesses presented assessments of issues associated with managing wastes generated from constructing and operating the proposed SJVEC. These assessments evaluated the proposed waste management plans and mitigation measures designed to reduce the risks and environmental impacts associated with handling, storing, and disposing of project-related hazardous and non-hazardous wastes generated during facility construction and operation.

SUMMARY OF THE EVIDENCE

The project site for over 100 years has been used for agricultural crop production and has no record of ever having supported any structures or industrial activity. No known underground or aboveground storage tanks have ever been located on the proposed site. Agricultural chemicals in the form of pesticides and fertilizers have been applied to the SJVEC site for at least the past seven years, presenting the possibility that elevated concentrations of these materials may be found in the site soils. (Exs. 1, Vol. 2, App. 8.13A; 2a, p. 4.13-3; 3P, p. 108.)

Applicant conducted a Phase I Environmental Site Assessment (ESA), which identified several offsite areas of possible environmental concern, including documented leaking underground storage tanks located approximately ¾ mile from the project site. However, it was determined that the likelihood of these areas posing any risk to the site environment or to the health or safety of site workers was minimal. (2a, p. 4.13-3; 3P, p. 108.)

Staff requested that Applicant perform a Phase II ESA. In response, Applicant submitted a soil sampling and analysis that sampled soils at 12 locations on the SJVEC site, some of which are in areas scheduled for site preparation; a few others are located in areas that would appear to remain undisturbed. Each

surface and subsurface soil sample was combined with a sample from another location. Thus, samples 1 and 2 were combined, 3 and 4 were combined, etc. and then submitted as composites for analysis for Arsenic, total Chromium, Lead, and pesticides. Staff's review of the data led to the following conclusions:

- metals were shown to be at typical background levels for arsenic and lead, with the exception that at one composite location, arsenic levels might greatly exceed background levels;
- chlorinated pesticides such as toxaphene could be encountered at harmful levels during site preparation activities; and
- **Condition WASTE-6** is appropriate to ensure that the levels of arsenic and chlorinated pesticides are low enough so as to present an insignificant risk to workers and the off-site public. (Ex. 2a, p. 4.13-4.)

The parties are in agreement with the mitigation measures we impose as Staff has amended **Condition WASTE-6** consistent with Applicant's request, and deleted **Condition WASTE-8** altogether. (Ex. 2a, p. 4.13-11/13; 2 O, pp. 25-27; 3P, p. 111-12; *see* **Conditions WASTE-1-7**.)

A. Construction

Applicant's witness in his testimony described the project setting and the types and quantities of wastes that would be generated during SJVEC's construction and operation. Site preparation and construction of the proposed generating plant and associated facilities would generate both nonhazardous and hazardous wastes in solid and liquid forms. Nonhazardous solid wastes anticipated to be generated during construction are approximately:

- 100 tons of wood, paper, glass and plastics;
- 70 tons of excess concrete;
- 25 tons of scrap metal; and
- up to 2,100 barrels (approximately 650 tons) of non-toxic drilling mud. (Exs. 1, Vol. 1, § 8.13.3.1.1; 2a, p. 4.13-5.)

Wherever possible and practical these wastes would be recycled, particularly the paper products and metals. Nonrecyclable wastes would be collected and

disposed of in a Class III landfill. Exceptions might include the disposal of the waste concrete in a clean fill site if one is available, and the disposal of the drilling mud in a Class II landfill. The construction contractor would be considered the generator of hazardous wastes at the SJVEC site during the construction period. Wastes would be accumulated at satellite locations and then transported daily to the 90-day storage area located at the site construction laydown area. The wastes thus accumulated would be properly manifested, transported, and properly disposed of by licensed hazardous waste collection and disposal companies before the 90-day storage limit is exceeded. (Exs. 1, Vol. 1, p. 8.13-5; 2a, p. 4.13-5; 3P, p. 109.)

B. Operation

The proposed SJVEC would generate both nonhazardous and hazardous wastes in solid and liquid forms under normal operating conditions. Nonhazardous solid wastes generated during plant operation are expected to include rags, turbine air filters, broken and rusted metal and machine parts, broken or defective electrical materials, empty containers, and typical worker and small office wastes. Approximately 50 tons (70 cubic yards) of these wastes are projected to be generated annually. Large metal parts would be recycled.[46] (2a, p. 4.13-5/7; 3P, p. 108.)

SJVEC proposes to install a zero liquid discharge system (ZLD) in order to reuse all of the process wastewater within the plant. This would minimize the use of fresh water and reduce wastewater discharges. ZLD consists of three concentration steps:

- the cooling tower;
- a high Total Dissolved Solids (TDS) reverse osmosis system, and
- a brine concentrator.

[46] Nonhazardous liquid wastes would be generated during facility operation, and are discussed in our section on **Soil and Water Resources**

This process removes calcium, silica and other minerals from the blow down water and sends approximately 90 percent of the water back to the cooling tower for reuse. The remaining 10 percent is further processed and stored in the demineralized water storage tank for use in the combustion turbines and HRSG. (Exs. 1, Vol. 1, § 2.2.9.1.2; 2a, p. 4.13-6.)

ZLD operation would generate approximately 29 to 48 tons of salt cake waste per day; an expected annual generation is 14,000 tons. If these solid wastes generated from the crystallizer are not classified as hazardous, they would be considered a California designated waste due to their high salt content. The category of designated waste includes nonhazardous waste containing pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations that could exceed applicable water quality objectives or affect the beneficial uses of waters of the state. . Designated wastes must be disposed of at Class I or Class II disposal sites. In order to ensure proper salt cake disposal, Staff proposes **Condition WASTE-7,** which would require testing of the salt cake. (Exs. 2a, p. 4.13-6 citing tit. 27 CCR § 20210; 3J, p. 108.)

Staff notes that testing of brine concentrator effluent in similar projects showed that chromium and selenium are present in quantities that may approach regulatory levels for hazardous wastes. That effluent is subsequently routed to the crystallizer for further concentration. If the effluent were to contain hazardous levels of any constituent, such concentration could be considered hazardous waste treatment, a process that would require a permit from the Department of Toxic Substances Control (DTSC). Because the effluent water is reused in the plant, however a recycling exemption would apply as long as the following conditions are met:

1. The wastewater must be recycled at the same facility at which it was generated.
2. The wastewater must be recycled within generator waste accumulation time limits.

3. The wastewater must be managed in accordance with all applicable requirements for generators of hazardous wastes under Health and Safety Code Chapter 6.5 and regulations adopted by DTSC. (Ex. 2a, p. 4.13-6, citing Health and Safety Code § 25132.2(c) (2.); *see* **Condition Waste-7**.)

SJVEC's nonhazardous solid wastes would be recycled if possible, or disposed of in a Class III landfill. Mid Valley Disposal, the garbage collection service for the City of San Joaquin and the commercial and industrial sites around it, would service the SJVEC. This company typically uses the Avenal Landfill in Kings County, California, a facility with a permitted capacity of 300 tons per day, and an 8.2 million cubic yard remaining capacity. The estimated closure date for this facility is 2040. (Ex. 2a, p. 4.13-7.)

The American Avenue Landfill in Kerman, California offers an alternative facility for the disposal of nonhazardous solid wastes. This facility has a permitted capacity of 32.7 million cubic yards, 2,200 tons per day, a remaining capacity of 32.4 million cubic yards, and an estimated closure date of 2031. Table 8.13-3 in the AFC lists four other sites that could provide additional alternatives for the disposal of solid nonhazardous wastes generated at the SJVEC. (Exs. 1, Vol. 1, § 8.13-4, Table 8.12-3; 2a, p. 4.13-7.)

Hazardous wastes anticipated to be generated during routine project operation include waste oil, used oil filters, laboratory waste, Selective Catalytic Reduction (SCR), and oxidation catalysts, oily rags and absorbents, and used acidic and alkaline chemical cleaning wastes (potentially containing high concentrations of heavy metals). Most of the wastes would be generated in relatively small quantities and would be recycled by certified recyclers. The acidic and alkaline cleaning wastes would be accumulated during maintenance activities and then disposed of offsite. The emission control catalysts would require regeneration every three to five years resulting in the generation of 1,000 pounds each of both SCR material and CO catalyst material. These wastes could require disposal in a Class I facility if recycling/regeneration proves not to be feasible. Chemical

materials collected in drains as a result of spillage, overflows, and maintenance operations would be neutralized onsite (if necessary) and directed into the cooling tower basin. Applicant has stated a goal of recycling 100 percent of all hazardous wastes generated during operations. (Ex. 1, Vol. 1, p. 8.13-6 & Tables 8.13-2; 2a, p. 4.13-7; 3P, p. 108.)

DTSC lists 46 facilities in California that can accept hazardous wastes for treatment or disposal, and Applicant discusses the three Class I landfills in California:

- the Buttonwillow Landfill in Kern County;
- the Westmorland Landfill in Imperial County, and
- the Kettleman Hills Landfill in King's County, which is the Class I facility nearest the proposed SJVEC.

The Kettleman Hills facility also accepts class II and Class III wastes. In total, there is in excess of 21.9 million cubic yards of remaining hazardous waste disposal capacity at these landfills, with remaining operating lifetimes up to the year 2078. The amount of hazardous waste transported to these landfills has decreased in recent years due to source reduction efforts by generators and the transport of waste out of state that is hazardous under California law, but not federal law. (Ex. 1, Vol. 1, p. 8.13-9; 2a, p. 4.13-8; 3P, p. 109-10.)

With the exception of ZLD salt cake, which must be disposed of at a Class I or II landfill, most of SJVEC's hazardous waste would be generated during facility construction and startup in the forms of flushing and cleaning liquids. Volumes of hazardous wastes generated during facility operation would be minimal. All hazardous wastes generated during both phases would be transported offsite to a permitted TSD facility for appropriate disposition, preferably recycling. The volume of hazardous waste and designated waste from SJVEC requiring off-site disposal would be a very small fraction of the existing combined capacity of the Class I or Class II landfills, and would not significantly impact the capacity or remaining life of any of these facilities. (Exs. 1, Vol. 1, p. 8.13-9; 2a, p. 4.13-8.)

We conclude that:

- SJVEC's volume of solid nonhazardous waste requiring off-site disposal (including the salt cake if found nonhazardous) represents less than 2 percent of the daily capacity available at the American Avenue and Avenal landfills alone, which is an insignificant amount;
- expected annual generation would be a small fraction of the existing combined capacity of the available Class III landfills, and would not significantly impact the capacity or remaining life of any of these facilities;
- With the exception of ZLD salt cake, which must be disposed of at a Class I or II landfill, most of SJVEC's hazardous waste would be generated during facility construction and startup in the forms of flushing and cleaning liquids;
- SJVEC's volumes of hazardous wastes generated during facility operation would be minimal; and
- SJVEC's management of wastes would be performed in a manner that poses little or no risk to the public and the environment. (Ex. 1, Vol. 1, p. 8.13-8; 2a, p. 4.13-8/10; 3P, p. 110.)

D. Cumulative Impacts

As proposed, the quantities of nonhazardous and hazardous wastes generated during construction and operation of the SJVEC project would add to the total quantities of waste generated in and around the City of San Joaquin and in Fresno County and the State of California. The SJVEC would generate:

- during construction, an estimated 850 tons of solid waste;
- during operation approximately 50 tons of nonhazardous solid wastes, about 3 tons of hazardous wastes, and as much as 14,000 tons per year of either hazardous or designated waste in the form of the ZLD salt cake.

For comparative purposes, these amounts would comprise approximately 2 percent of the total waste generated in Fresno County in the year 2000. Accordingly, because the wastes would be generated in moderate quantities, recycling efforts would be prioritized wherever practical, and capacity is available in a variety of disposal facilities, these added SJVEC's generated waste quantities would not result in significant waste management impacts. (Ex. 2a, p. 4.13-8; 3P, p. 110.)

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, we find as follows:

1. The project will generate hazardous and non-hazardous wastes during construction and operation.

2. SJVEC proposes to install a zero liquid discharge system (ZLD) in order to reuse all of the process wastewater within the plant. ZLD will produce nonhazardous waste and may produce hazardous waste.

3. The project site for over 100 years has been used for agricultural crop production and has no record of ever having supported any structures or industrial activity.

4. Agricultural chemicals in the form of pesticides and fertilizers have been applied to the SJVEC site for at least the past 7 years, presenting the possibility that elevated concentrations of these materials may be found in the site soils.

5. Applicant conducted a Phase I Environmental Site Assessment (ESA), which determined that the likelihood of offsite contamination posing any risk to the site environment or to the health or safety of site workers was minimal.

6. Soil sampling at the site demonstrated possible elevated levels of arsenic and chlorinated pesticides such as toxaphene. However, **Conditions WASTE-4-6** will ensure that any contaminated soil will be removed in accordance with applicable LORS to protect the health and safety of site workers and the public.

7. The volume of hazardous waste and designated waste from SJVEC requiring off-site disposal would be a very small fraction of the existing combined capacity of the Class I or Class II landfills, and would not significantly impact the capacity or remaining life of any of these facilities.

8. With the exception of ZLD salt cake, which must be disposed of at a Class I or II landfill, most of SJVEC's hazardous waste would be generated during facility construction and startup in the forms of flushing and cleaning liquids. Volumes of hazardous wastes generated during facility operation would be minimal.

9. The project will comply with all applicable LORS and wastes generated during construction and operation of the proposed project will be managed in an environmentally safe manner.

10. Disposal of SJVEC project wastes will not result in significant adverse impacts to existing waste disposal facilities.

11. The Conditions of Certification set forth below and waste management practices detailed in the Application for Certification will reduce all potential waste management impacts to a level of insignificance.

We therefore conclude that implementation of the Conditions of Certification below will not result in any significant adverse impacts from the management of wastes generated during construction and operation of the SJVEC. We further conclude that the project will conform with all LORS relating to waste management in the pertinent portions as identified in Appendix A.

CONDITIONS OF CERTIFICATION

WASTE-1 Upon becoming aware of any impending waste management-related enforcement action, the project owner shall notify the CPM of any such action taken or proposed to be taken against it, or against any waste hauler or disposal facility or treatment operator with whom the owner contracts.

Verification: The project owner shall notify the CPM in writing within 10 days of becoming aware of an impending enforcement action.

WASTE-2 Both the project owner and, if necessary, its construction contractor shall obtain unique hazardous waste generator identification numbers from the Department of Toxic Substances Control (DTSC) in accordance with DTSC regulatory authority.

Verification: The project owner and its construction contractor shall keep copies of the identification numbers on file at the project site and notify the CPM via the monthly compliance report of their receipt.

WASTE-3 Prior to the start of construction and operation activities, the project owner shall prepare and submit to the Fresno County Human Services System's Department of Community Health, Environmental Health System for review and comment, and to the CPM for review and approval, waste management plans 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 expected waste streams, including hazard classifications and projections of quantity and frequency.

- 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.

- A stated goal that not less than 50 percent of all construction and operation wastes will be recycled. Measures that will allow that goal to be achieved should be identified.

- A statement that the project owner will participate in the local recycling program to the extent that the local program is consistent with state law.

Verification: At least 30 days prior to the start of construction, or a lesser time as mutually agreed to by the project owner and the CPM, the project owner shall submit the Construction Waste Management Plan to the Fresno County Human Services System's Department of Community Health, Environmental Health System for review and comment, and to the CPM for review and approval. The Operation Waste Management Plan shall be submitted no less than 60 days prior to the start of project operation. 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 and the actual quantities of material recycled and disposed of.

WASTE-4 The project owner shall have a Registered Professional Engineer or Geologist, with experience in remedial investigation and feasibility studies, available for consultation during soil excavation and grading activities in the event that contaminated soils are encountered. The Registered Professional Engineer or Geologist shall be given full authority to oversee any earthmoving activities that have the potential to disturb contaminated soil.

Verification: At least 30 days prior to the start of construction, or a lesser time as mutually agreed to, the project owner shall submit the qualifications and experience of the Registered Professional Engineer or Geologist contracted for consultation to the CPM for approval.

WASTE-5 If potentially contaminated soil is unearthed during excavation at either the proposed site or linear facilities as evidenced by discoloration, odor, detection by handheld instruments, or other signs, the Registered Professional Engineer or Geologist shall inspect the site, determine the need for sampling to confirm the nature and extent of contamination, and file a written report to the project owner and the CPM stating the recommended course of action. Depending on the nature and extent of contamination, the Registered Professional Engineer or Geologist shall have the

authority to temporarily suspend construction activity at that location for the protection of workers or the public. If, in the opinion of the Registered Professional Engineer or Geologist, significant remediation may be required, the project owner shall notify the CPM and contact representatives of the Fresno County Human Services System's Department of Community Health, Environmental Health System, the Fresno County Fire Department, DTSC, and other agencies as appropriate for guidance and possible oversight.

Verification: The project owner shall submit any final reports filed by the Registered Professional Engineer or Geologist to the CPM within five days of their receipt.

WASTE-6 All workers involved in site preparation shall be thoroughly trained and prepared to encounter soils containing hazardous wastes. Training shall include, as appropriate for the work to be performed, Hazardous Waste Operations (8 CCR 5192), Hazard Communication (8 CCR 5194), and special precautions to take when working in environments where exposure to inorganic arsenic is encountered as described in 8 CCR 5214 with the exception of subsection (n). After site preparation, all areas of the site shall be 1) capped by buildings, asphalt, gravel, or concrete, 2) landscaped, or 3) returned to agricultural use. As an alternative to worker training and capping the site, the project owner can demonstrate through a more rigorous sampling and analysis program that the levels of arsenic and chlorinated pesticides are low enough so as to present an insignificant risk to workers and the off-site public.

Verification: Not later than 30 days prior to commencement of site preparation, the CPM shall be notified regarding whether the alternative soil testing will be implemented in lieu of mitigation. A soil sampling and analysis plan shall be submitted to the CPM for review and approval prior to initiation of the soil sampling and analysis program.

WASTE-7 The project owner shall initially test the salt cake product from the crystallizer for the presence of hazardous levels of metals. If levels are below ten times the Soluble Threshold Level Concentration as listed in Title 22, California Code of Regulations, section 66261.24, then future testing is not required unless there is a substantial change in the wastewater treatment process. If not classified as a hazardous waste, the project owner shall manage the salt cake product appropriately as a designated waste.

Verification: As soon as practicable but no later than 30 days after the initial generation of salt cake, the project owner shall notify the CPM of the test results and the planned disposal method.

WASTE-8 Deleted based upon Staff's recommendation. (Ex. 2 O, p. 26.)

VI. ENVIRONMENTAL ASSESSMENT

As part of its statutory mandate, the CEC must analyze a project's potential effect upon various elements of the human and natural environments. Our 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 biological resources impacts of the project and its related facilities, and address the adequacy of mitigation measures necessary to reduce any identified impacts to less than significant levels.

A. BIOLOGICAL RESOURCES

SUMMARY OF THE EVIDENCE

1. Local Setting

The proposed SJVEC site and linear facilities (transmission line, natural gas line, and reclaimed water line) are located centrally in the San Joaquin Valley, in the western half of Fresno County. Historically, the San Joaquin Valley contained many natural habitats that supported a variety of plant and animal species. These natural environments, however, have been largely converted to agricultural and urbanized land uses, and very few natural areas remain. The nearest remaining natural area is the Mendota Wildlife Area, located approximately eight miles northwest of the project. (Exs. 2a, p. 4.2-2/3; 3Q, p. 4.)

In the vicinity of the project, the San Joaquin Valley contains predominantly agricultural production lands, with other mixed uses including residential areas and commercial and industrial facilities. The loss and fragmentation of habitat in the San Joaquin Valley has resulted in the elimination of many species of wildlife and the reduction of populations of many other species of wildlife. Although these areas have been highly modified from their natural state, several special status plant, and animal species may occur in the project vicinity. In addition, several plant, animal,

and bird species listed under state and/or federal Endangered Species Acts potentially occur in the project region. Of these species, six are expected to potentially occur in the project vicinity, including the:

- federally and state threatened giant garter snake;
- federally and state endangered blunt-nosed leopard lizard;
- state threatened Swainson's hawk;
- federal and state species of special concern burrowing owl;
- federal and state species of special concern mountain plover;
- federally endangered and state threatened San Joaquin kit fox;
- northern harrier; and
- Cooper's hawk.[47] (Exs. 2a, p. 4.2-4; *see* below **Table 1**; 3Q, p.4.)

No sensitive plant species were identified within the project area and none are expected to occur due to the lack of suitable habitat and the existing land uses. The areas that would be permanently and temporarily disturbed by the proposed project do not support natural habitat, and occur on highly disturbed agricultural lands that are regularly subjected to farming practices such as heavy disking and herbicide treatments. (Ex. 2a, p. 4.2-4/5.)

Wildlife species that are not state or federally listed, but are considered to have recreational and/or commercial value, may occur in the project area. For example, bird species that provide hunting opportunities for hunters, such as the mourning dove, ring-necked pheasant, and common mallard are known to occur in the vicinity of the project and may occasionally occur on the SJVEC site. (Ex. 2a, p. 4.2-5.)

[47] Staff observed the northern harrier, and Cooper's hawk, and reports that Swainson's hawks have been observed foraging within the project area. These species may nest within or near the project area. (Ex. 2a, p. 4.2-4.)

BIOLOGICAL RESOURCES - Table 1
Sensitive Species Known to Occur in the Project Vicinity

Sensitive Plants	Status*
Heartscale (*Atriplex cordulata*)	CNPS 1B
Brittlescale (*Atriplex depressa*)	CNPS 1B
Lesser saltscale *(Atriplex miniscula*)	CNPS 1B
Palmate-bracted bird's-beak (*Cordylanthus palmatus*)	FE, CE, CNPS 1B
Recurved larkspur (*Delphinium recurvatum*)	CNPS 1B
Munz's tidytips (*Layia munzii*)	CNPS 1B
San Joaquin woolythreads (*Monolopia congdonii*)	FE, CNPS 1B

Sensitive Wildlife	**Status***
Ciervo Aegilian scarab beetle (*Aegialia concinna*)	none
San Joaquin dune beetle (*Coelus gracilis*) `	none
Giant garter snake (*Thamnophis gigas*)	FT, CT
Blunt-nosed leopard lizard (*Gambelia sila*)	FE, CE
California horned lizard (*Phrynosoma coronatum frontale*)	CSC
Northern harrier (*Circus cyaneus*)	CSC
Cooper's hawk (*Accipiter gentilis*)	FSC, CSC
Swainson's hawk (*Buteo swainsoni*)	CT
Burrowing owl (*Athene cunicularia*)	FSC, CSC
California horned lark (*Eremophilia alpestris actia*)	CSC
Mountain plover (*Charadrius montanus*)	FSC, CSC
Fresno kangaroo rat (*Dipodomys nitratoides exilis*)	FE, CE
Giant kangaroo rat (*Dipodomys ingens*)	FE, CE
San Joaquin antelope squirrel (*Ammospermophilus nelsoni*)	CT
San Joaquin kit fox (*Vulpes macrotis mutica*)	FE, CT

***STATUS LEGEND:** FE = Federally listed Endangered; FT = Federally listed Threatened; FPT = Federal proposed Threatened; California Native Plant Society (CNPS 2001) CNPS 1B = Rare and endangered plants of California and elsewhere; CE = State listed Endangered, CT = State listed Threatened; and CSC = State Species of Special Concern.
Source: (Ex. 2b, p. 2-1/2.)

Nesting burrowing owls have been recorded in the project vicinity and one dead burrowing owl was observed during recent field surveys of the project area near the California Aqueduct. Mountain plovers were not observed during field surveys, but may occasionally use the project vicinity as winter resting and foraging range. San Joaquin kit fox may utilize the project area and surrounding agricultural areas as a migration corridor and perhaps as an occasional foraging location. Other listed

wildlife species that are known to occur in the vicinity of the proposed SJVEC site and related linear facilities are not expected to occur on site due to the highly modified agricultural environment that exists. (Ex. 2a, p. 4.2-4.)

Cotton fields dominate the project site, which is at 170 feet elevation, near the middle of a broad, open valley. Surrounding the SJVEC site and most of the linear corridors are miles of uniform fields of cotton, tomatoes, sorghum, alfalfa, or melons.[48] There are also smaller areas of grapes and orchards. The region's climate is arid, characterized by very hot, dry summers and moderate, wet winters. Rainfall averages 10 inches per year, most of which falls between November and March. The water supply line, gas pipeline, and electrical transmission lines are in the same region and habitat conditions. (Ex. 3Q, p. 4.)

2. Power Plant Site

The proposed SJVEC plant site is located in an industrial-zoned area in the southern end of the town of San Joaquin. The 85-acre site is bordered by commercial and industrial areas within the town of San Joaquin to the north, West Springfield Avenue to the south, Colorado Avenue to the east, and a combination of agricultural and commercial lands to the west. The SJVEC would be permanently placed on approximately 25 acres of an 85-acre site that currently is active agricultural land under cotton production. An additional 25 acres of the site would be used during project construction as a temporary laydown area for construction-related activities, such as parking and staging of equipment. The remaining acreage would be leased for agricultural practices. SJVEC's power plant site would not be adjacent to any riparian habitat or sensitive natural communities. (Exs. 2a, p. 4.2-5, 11; 3Q, p. 4.)

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[48] Wildlife species that commonly use cotton, alfalfa, tomato, or melon fields are generally wide ranging, highly adaptable species that are regionally abundant. For example, Staff observed potentially suitable Swainson's hawk nesting trees in several locations along the project linear routes that are within ½ mile of the proposed project. Large soaring raptors such as red tail hawks and Swainson's hawks occasionally forage in alfalfa fields. Active Swainson's hawk nests located within ½ mile of the project would require mitigation that disallows construction activities during the nesting period. (Exs. 2a, p. 4.2-4; 3Q, p. 4.)

These areas do not contain any native or sensitive plant species, and no sensitive animal species or sensitive habitats occur at these locations. In the San Joaquin Valley, however, agricultural lands are considered potential habitat for the state and federally listed San Joaquin kit fox (SJKF). Loss of this habitat requires consultation with the United States Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG) to develop mitigation measures and provisions for incidental take. Applicant and the USFWS have informally consulted on the incidental take of SJKF habitat, and the USFWS has determined that construction and operation of the SJVEC (including the power plant, laydown areas, transmission lines, and natural gas and water supply pipelines) is not expected to adversely affect SJKF or any other federally listed species. Therefore, the USFWS has opined that the SJVEC project would not create a "take" and no habitat compensation or Section 7 permitting was appropriate. In addition, CDFG's stated intent is not to require that Applicant obtain an incidental take permit for any state-listed species for the SJVEC project. (Exs. 2a, p. 4.2-8; 3Q, p. 5.)

3. Linear Facilities
    a. Transmission Lines

The proposed transmission line right of way is currently active agricultural land (cotton production) with one intersecting roadway (West Springfield Avenue). The proposed transmission lines would include two adjacently-placed 230 kV lines that share the same 100 foot-wide right of way, and travel approximately 1,500 feet south from the SJVEC site towards the PG&E Helm Substation. One line would connect directly into the substation and the second would be diverted west and connected with the existing Panoche-Helm transmission line. (Ex. 2a, p. 4.2-5.)

Because the installation and operation of the proposed transmission lines would occur in existing agricultural lands, no removal of native plants or habitat for sensitive animal species is required. Further, SJVEC's transmission lines would not

be adjacent to any riparian habitat or sensitive natural communities. Additional impacts resulting from the transmission lines include the potential for birds to be electrocuted, harmed, or killed by a collision with the new transmission lines. (Ex. 2a, p. 4.2-10, 11.)

To reduce the potential for bird electrocutions at the SJVEC transmission lines, Applicant will be required to incorporate measures developed by the Avian Powerline Interaction Committee in Suggested Practices for Raptor Protection on Powerlines. These measures include implementing the prescribed spacing of phases to avoid phase-to-phase contact electrocution of birds with large wingspans, and must be included in the project's BRMIMP. We conclude that with incorporation of these and other measures that stress impact avoidance, the transmission lines would not pose a significant electrocution threat to bird species.[49] (Ex. 2a, p. 4.2-2; see **Condition BIO-5**.)

b. Natural Gas Pipeline

Temporary disturbances related to the installation of the pipeline (e.g., noise and dust) could adversely affect special status wildlife species that may occur in the vicinity. Special status raptor species such as Swainson's hawks, Cooper's hawks, and northern harriers may nest and forage near the project, and project-related activities could disrupt nesting and foraging behavior. Implementation of mitigation measures identified in the Biological Resource Mitigation and Monitoring Plan (BRMIMP) to protect sensitive species (e.g., pre-construction nesting surveys and

[49] Staff does not anticipate any significant collision-related impacts to birds due to the short distance of the transmission lines, the proximity to existing PG&E lines associated with the nearby Helm Substation, and the placement of the transmission line within an area that does not support habitat that is attractive to large flocks of birds (e.g., wetlands, grain crops, woodlands). In areas adjacent to large wetlands, birds are known to collide with the overhead ground wire(s), not the conductor, because the ground wire is usually located above the conductor and is harder to see, as it is much smaller in diameter than the conductor. Since the project is not located near such an area, the project's short transmission line and associated overhead ground wire(s) are not expected to pose a threat to local birds. (Ex. 2a, p. 4.2-10/11.)

construction timing restrictions) will lessen the likelihood of significant impacts to nesting raptors.[50] (Exs. 2a, p. 4.2-10; 3Q, pp. 7/8.)

Wildlife species could become trapped and buried in open trenches during construction of the natural gas supply pipeline and other facilities. Therefore, we will require that the BRMIMP include construction management practices that would be implemented to prevent entrapment or provide escape structures for wildlife. In addition, the Designated Biologist (See Condition of Certification BIO-1) would be required to inspect trenches and other construction areas prior to construction activities each day. (Ex. 2a, p. 4.2-10; *see* **Conditions BIO-1 & 9**.)

Fresno Slough and the California Aqueduct are the only ecologically sensitive areas that the natural gas supply line would cross.[51] Although degraded, Fresno Slough, and other aquatic features in the project area (e.g., James Bypass, California Aqueduct, and several irrigation ditches) support mature riparian woodland vegetation, and may provide habitat for a variety of wildlife species such as the blunt-nosed leopard lizard, and the giant garter snake.[52] The lands adjacent to the California Aqueduct support some remnant vegetation, and may provide habitat for a variety of wildlife species. Several locations along the natural gas line may provide potential nesting and foraging habitat for burrowing owls. Directional drilling will reduce direct impacts to the aquatic habitats to a less-than-significant level and will require Applicant to submit a CDFG Streambed Alteration Agreement (SAA)

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[50] Applicant has already provided to Staff a draft of the BRMIMP. (Ex. 2a, p. 4.2-1.)

[51] The new 24-inch gas pipeline begins at a new metering station on Manning Avenue, approximately three miles east of Interstate Highway 5 (I-5), and crosses 20-miles of intensive agricultural lands. Along the way, it crosses under the California Aqueduct, numerous irrigation ditches, and Fresno Slough. (Ex. 3Q, p. 4.)

[52] Fresno Slough is a 20-foot wide channelized canal that carries storm water and collects agricultural return water. James Bypass is a 25-foot wide canal that conveys irrigation supply water; an adjacent dry channel is used to absorb floodwaters. (Ex. 2a, p. 4.9-7.)

notification package to the Compliance Project Manager (CPM).[53] (Ex. 2a, p. 4.2-4/5/9.)

Approximately two miles of the pipeline right of way would be constructed along roadways that traverse a combination of farmland and sparsely distributed residences. The remaining 19 miles of pipeline would be placed on previously disturbed areas along an existing roadway (Manning Avenue) and within active agricultural lands. Pipeline construction would not result in the removal of native vegetation, but would temporarily disturb approximately 170 acres of agricultural land, and permanently disturb approximately 0.4 acres of agricultural land (metering and mainline valve stations). The natural gas pipeline once under grounded is not expected to cause adverse impacts because occasional land disturbances associated with maintenance activities is consistent with current uses where agricultural crops are often removed once or twice per year. (Exs. 2a, p. 4.2-6; 3Q, pp. 4/8.)

We conclude that, with implementation of measures outlined in our conditions, no significant impacts on special status species or their habitat would result from installation and operation of the natural gas and water supply pipelines. (*See* **Conditions BIO-1, 2, 3, 5, & 7**.)

c. Power Plant Access Road

An approximately 800 feet-long primary access road would connect the SJVEC directly to two existing paved roadways: Springfield Avenue (immediately south of the site) and Cherry Lane (immediately west of the site). The proposed road would be placed on existing agricultural land within the 85-acre power plant site. The

[53] Applicant is currently working to obtain an SAA and will be required to submit a finalized agreement 30 days prior to any on-site activities). The SAA would provide provisions for avoiding impacts related to the water crossing (e.g., inadvertent release of drilling fluids). (Ex. 2a, pp. 4.2-9/10; ***see* Condition BIO-7**.)

access road would not be adjacent to any riparian habitat or sensitive natural communities. (Ex. 2a, p. 4.2-6/11.)

Roadway collisions are known to increase wildlife mortality, and the proposed access road may contribute to local loss of wildlife. The proposed road, however, would be located in farmland that is used for intensive cotton production, and is, therefore, considered poor habitat for wildlife. (Ex. 2a, p. 4.2-6/10.)

To minimize the likelihood of access road-related wildlife mortalities, our Conditions will include a measure to limit vehicular speed along the access road. We conclude that because the road would be placed within and adjacent to poor wildlife habitat, and because the project owner would be required to implement a vehicular speed control measure, the project's access road will not pose a significant threat to wildlife. (Ex. 2a, p. 4.2-11; *see* **Condition BIO-5**.)

d. Reclaimed Water Supply Pipeline

Several locations along the reclaimed water line may provide potential nesting and foraging habitat for burrowing owls. James Bypass is the only ecologically sensitive area that the planned water supply line route crosses. Although highly degraded, James Bypass supports mature riparian woodland vegetation that provides wildlife habitat. Natural vegetation would not be affected by construction or operation of the reclaimed water supply pipeline. In addition, the BRMIMP will include construction management practices that will be implemented to prevent entrapment or provide escape structures for wildlife. (Ex. 2a, p. 4.2-4/.9/10; *see* **Conditions BIO-1 & 9**.)

The reclaimed water supply line starts in the Fresno Clovis Waste Water Treatment Plant's (WWTP) recharge fields, 20 miles east of the project, and runs adjacent to rural roads through 20 miles of lands engaged in intensive agriculture. The installation of the water supply line would result in the temporary disturbance of 178 acres of agricultural lands. (Exs. 2a, p. 4.2-6; 3Q, p. 4.)

The SJVEC is designed to generate no wastewater discharge. Thus, we conclude that potential adverse impacts to biological resources, which might result from wastewater generation and discharge, are negligible. (Ex. 2a, p. 4.2-11.)

e. Power Plant Exhaust Stacks

The SJVEC project includes three 145 foot exhaust stacks. Tall structures such as radio and television antennas, power plant and refinery exhaust stacks, large buildings, and power lines can pose a threat to birds that might collide with them. These structures pose more of a collision threat during periods of inclement weather and when they are located within or adjacent to areas supporting habitats that attract large flocks of birds (e.g., wetlands, open water areas, areas planted in grain crops). Here, SJVEC's project site and the adjacent areas do not support habitat that would be attractive to large flocks of birds. Therefore, we conclude that SJVEC's proposed facilities will not pose a significant bird collision threat to local and/or migratory bird populations. (Ex. 2a, p. 4.2-9.)

f. Storm Water Impacts to Biological Resources

Storm water from the 25-acre developed portion of the SJVEC would be collected by pipes, channels, and drains, and sent through oil-water separators prior to collection in a 250 X 300 foot percolation/evaporation detention basin (located on site). Due to the temporary ponding of water, the proposed detention basin may periodically attract bird species (e.g., migratory and local waterfowl, shorebirds, and wading birds) and expose them to toxic chemicals (e.g., chemicals found in oil and heavy metals). However, percolation and evaporation are expected to rapidly dry-out the basin following storm events because of the climate and soil conditions on site. (Ex. 2a, p. 4.2-12.)

Staff contacted CDFG to discuss potential biological-related impacts from SJVEC's proposed detention basin. CDFG responded that the storm water basin is unlikely to

significantly attract and affect birds due because of the estimated limited time of ponding and its location within the power plant site. CDFG also suggested that, in the event birds are consistently observed using the basin, CDFG will need to be notified to determine if measures (e.g., hazing, netting) should be implemented to deter birds from using the detention basin. Therefore, we shall require that the BRMIMP include measures to notify CDFG if birds are consistently observed using the storm water detention basin when ponded. (Ex. 2a, p. 4.2-12; *see* **Condition BIO-5**.)

4. Required Mitigation

Construction of the proposed SJVEC and linear facilities would result in the permanent loss of 25 acres and the temporary loss of 348 acres of agricultural land. This loss does not pose a significant impact to wildlife movement in the vicinity of the SJVEC since the surrounding agricultural lands provide alternate movement routes around the site. (Ex. 2a, p. 4.2-12.)

The SJVEC project will affect no surface waters, and there are no federally protected wetlands, including vernal pools and/or marsh habitat, within the proposed SJVEC site or along the proposed linear facilities that may be affected by construction and operation activities. Aquatic resources that occur along the natural gas and water supply pipeline routes (i.e., Fresno Slough, James Bypass, California Aqueduct, and various irrigation ditches) would not be affected due to directional drilling techniques that reduce direct impacts to these habitats to a less-than-significant level. (Exs. 2a, p. 4.2-7/8, 12; 3Q, p. 3.)

The SJVEC facility would generate additional noise, especially during construction. Staff concluded that the potential impact to biological resources from this additional noise is insignificant because SJVEC is located:

- adjacent to roadways or actively managed agricultural fields;
- near existing residential and industrial areas; and

- no sensitive species are known to occur in the immediate vicinity of the project. (Ex. 2a, p. 4.2-13.)

No local ordinances or policies related to sensitive biological resources have been identified. The City of San Joaquin's codes do include provisions that require an Applicant to notify the City prior to any tree removal activities and to follow guidelines established for landscape plantings. Applicant has indicated that trees will not be removed within the San Joaquin City limits, and that a revised on-site landscaping plan that complements the facility appropriate to the regional context is being developed in consultation with the City of San Joaquin. We conclude that the SJVEC does not conflict with local biological resource LORS. (Ex. 2a, p. 4.2-13.)

The proposed SJVEC will not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. The SJVEC is within the area addressed by the Recovery Plan for Upland Species of the San Joaquin Valley, which was developed to help protect habitat for 11 special status species known from the San Joaquin Valley. No critical habitat for these species, however, would be affected by the proposed project. (*Ibid.*)

Applicant and Staff agree on the mitigation required to reduce any impact to the SJVEC project area to less than significant. (Exs. 2a, p. 4.2-7/8, 12; 3Q, p. 3; *see* **Conditions BIO-1-9**.)

To provide protection for sensitive biological resources potentially affected by the SJVEC, we require the development and implementation of a Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP). Among other requirements, the BRMIMP will:

- present the mitigation measures recommended by the Applicant (provided in the Applicant's Preliminary Draft BRMIMP);
- incorporate the Streambed Alteration Agreement with the CDF&G,
- incorporate measures for construction and operation mitigation management to avoid harassment or harm to local wildlife and their habitat; and

- discuss the biological resource permits the Applicant expects to obtain, the responsibilities of the parties involved, and the lines of communication. (Ex. 2a, p. 4.2-9; ***see* Conditions BIO-5, 7-9**.)

Moreover, our imposed mitigation provide for:

- A pre-construction survey for sensitive resources by the project's Designated Biologist (or a qualified replacement). (See **Conditions BIO-1, 2, and 3**.)
- Exclusion barriers for potential kit fox dens (e.g., capping pipe ends), and implementation of a Compliance Project Manager (CPM) approved Worker Environmental Awareness Program. (See **Condition BIO- 4**.)
- The development of a Site Closure Plan. The Closure Plan will include provisions to protect biological resources when the power plant is closed and the site restored, if appropriate. (See **Condition BIO-6**.)

We conclude that with the implementation of our mitigation measures identified below to protect sensitive biological resources, construction, and operation of the SJVEC power plant and laydown areas will not have a significant impact on sensitive species or their habitat.

5. Cumulative Impacts[54]

Cumulative impacts are those that result from the incremental impacts of an action added to other past, present, and reasonably foreseeable future actions, regardless of who is responsible for such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. (Ex. 2a, p. 4.2-13/14.)

No natural habitats are remaining on the power plant site, and natural habitats associated with the linear facilities would be entirely avoided. Thus, all project-related disturbances would be limited to already-disturbed areas. (Ex. 2a, p. 4.2-14.)

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[54] The CEQA Guidelines define cumulative impacts as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." (14 Cal. Code of Regs. § 15355.)

The SJVEC, however, will result in the permanent and temporary loss of agricultural land. The permanent removal of agricultural land at the SJVEC, and at other projects in the vicinity, creates a cumulative effect on habitat and movement for the SJKF, and creates the potential for adverse impacts to special status species such as the giant garter snake, the burrowing owl, and migratory birds. However, due to the following facts, circumstances, and imposed mitigation measures, we conclude that the permanent and temporary loss of agricultural lands would not result in a significant unmitigated cumulative impact:

- The relatively small amount of agricultural land that will be permanently converted to the SJVEC,
- The lack of critical habitat for SJKF in the local area,
- Applicant's willingness to purchase compensatory wildlife habitat, and
- Our included mitigation measures. (Exs. 2a, p. 4.2-12/13; 3Q, p. 7**; Conditions BIO 1-5, 7, 8, and 9**.)

FINDINGS AND CONCLUSIONS

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

1. In the vicinity of the project, the San Joaquin Valley contains predominantly agricultural production lands, with other mixed uses including residential areas and commercial and industrial facilities.

2. Cotton fields dominate the project site, which is at 170 feet elevation, near the middle of a broad, open valley. The region's climate is arid, characterized by very hot, dry summers and moderate, wet winters. Rainfall averages 10 inches per year, most of which falls between November and March. The water supply line, gas pipeline, and electrical transmission lines are in the same region and habitat conditions.

3. The SJVEC would be permanently placed on approximately 25 acres of an 85-acre site that currently is active agricultural land under cotton production.

4. An additional 25 acres of the site would be used during project construction as a temporary laydown area for construction-related activities, such as parking and staging of equipment. The remaining acreage would be leased for agricultural practices.

5. Construction of the proposed SJVEC and linear facilities would result in the permanent loss of 25 acres and the temporary loss of 348 acres of agricultural land.

6. No sensitive plant species were identified within the project area and none are expected to occur due to the lack of suitable habitat and the existing land uses.

7. The power plant site does not contain any native or sensitive plant species, and no sensitive animal species or sensitive habitats occur at these locations.

8. In the San Joaquin Valley, however, agricultural lands are considered potential habitat for the state and federally listed San Joaquin kit fox. Loss of this habitat requires consultation with the United States Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG) to develop mitigation measures and provisions for incidental take.

9. The USFWS has opined that the SJVEC project would not create a "take" and no habitat compensation or Section 7 permitting was appropriate.

10. CDFG's stated intent is not to require for the SJVEC project that Applicant obtain an incidental take permit for any state-listed species.

11. Directional drilling will reduce direct impacts to the project area's aquatic habitats to a less-than-significant level and will require Applicant to submit a CDFG Streambed Alteration Agreement (SAA) notification package to the Compliance Project Manager (CPM).

12. Natural vegetation would not be affected by construction or operation of SJVEC's underground natural gas and water supply pipeline.

13. Because the installation and operation of the proposed transmission lines would occur on existing agricultural lands, no removal of native plants or habitat for sensitive animal species is required.

14. SJVEC's proposed facilities will not pose a significant bird collision threat to local and/or migratory bird populations.

15. The proposed SJVEC power plant site, access road, and transmission lines would be placed on existing farmland and would not be adjacent to any riparian habitat or sensitive natural communities.

16. The SJVEC project will affect no surface waters, and there are no federally protected wetlands, including vernal pools and/or marsh habitat, within the proposed SJVEC site or along the proposed linear facilities that may be affected by construction and operation activities.

17. Aquatic resources that occur along the natural gas and water supply pipeline routes (i.e., Fresno Slough, James Bypass, California Aqueduct, and various irrigation ditches) would not be adversely affected due to directional drilling techniques that reduce direct impacts to these habitats to a less-than-significant level.

18. Construction and operation of the SJVEC project, if not adequately mitigated, could create adverse impacts to the sensitive biological resources in the project area.

19. The permanent removal of agricultural land at the SJVEC, and at other projects in the vicinity, creates a cumulative effect on habitat and movement for the San Joaquin Kit Fox, and creates the potential for adverse impacts to special status species such as the giant garter snake, the burrowing owl, and migratory birds.

20. The project owner will, in consultation with the USFWS and the CDF&G, make land purchases to secure habitat that would provide movement corridors and other wildlife habitat values affected by the SJVEC facility.

21. The SJVEC does not conflict with local biological resource LORS.

22. The Conditions of Certification assure that the SJVEC Project will cause no significant unmitigated adverse impacts to biological resources in the project area.

23. The Conditions of Certification, if properly implemented, ensure that the SJVEC Project will comply with applicable LORS, which are set forth in the pertinent portion of Appendix A of this Decision.

We therefore conclude that construction and operation of the SJVEC Project will not create any significant direct, indirect, or cumulative adverse impacts to biological resources.

CONDITIONS OF CERTIFICATION

Selection of the Designated Biologist

BIO-1 The project owner shall submit the resume of the Designated Biologist to the California Energy Commission's Compliance Project Manager (CPM) for approval. Site and related facility activities shall not begin until a CPM approved Designated Biologist is available to be on-site.

Protocol: The Designated Biologist must meet the following minimum qualifications:

1. 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. At least one year of field experience with biological resources found in or near the project area; and
4. To the satisfaction of the CPM, demonstrate the appropriate education and experience for the biological resources tasks that must be addressed during project construction and operation.

Verification: At least 30 days prior to the start of any site or related facilities mobilization activities, the project owner shall submit to the CPM the resume and contact information of the proposed Designated Biologist for approval.

If a Designated Biologist is replaced, the resume and contact information of the proposed replacement must be submitted to the CPM at least 10 working days prior to the termination or release of the preceding Designated Biologist.

Designated Biologist Duties

BIO-2 The CPM approved Designated Biologist shall perform the following during any site or related facilities mobilization, construction, and operation activities:

1. Advise the project owner's Construction/Operation Manager, and supervising construction and operations engineer on the implementation of the biological resources Conditions of Certification.

2. Be available to 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 or their habitat.

3. Clearly mark areas with sensitive biological resources and inspect these areas for compliance with regulatory terms and conditions.

4. Inspect active construction areas where animals may have become trapped.

5. Inspect for the installation of structures that prevent entrapment or allow escape during periods of construction inactivity.

6. Periodically inspect areas with high vehicle activity (parking lots) for animals in harms way.

7. Notify the project owner and the CPM of any non-compliance with any biological resources Condition of Certification.

8. Respond to direct inquiries of the CPM regarding biological resource issues.

Verification: The project owner shall ensure that the Designated Biologist maintains written records of the tasks described above, and summaries of these records shall be submitted in the Monthly Compliance Reports.

Designated Biologist Authority

BIO-3 The project owner's Construction/Operation 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/Operation Manager shall halt, if necessary, all construction or operation 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:

a. Inform the project owner and the Construction/Operation Manager when to resume construction or operation, and
b. Advise the CPM if any corrective actions have been taken or will be instituted.

Verification: Within 24 hours of a Designated Biologist notification of non-compliance or a halt of construction or operation activities, the project owner shall notify the CPM 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.

Worker Environmental Awareness Program

BIO-4 The project owner shall develop and implement a CPM approved Worker Environmental Awareness Program (WEAP) in which each of its employees, as well as employees of contractors and subcontractors who work on the project site or any related facilities during site mobilization, ground disturbance, grading, construction, operation, and closure are informed about sensitive biological resources associated with the project. The training may be presented in the form of a video.

The WEAP must:

1. Be developed by or in consultation with the Designated Biologist and may consist of either an on-site or training presentation, a training center presentation, or a video presentation. Training presentations will be supported by written materials made available to all participants.
2. Discuss the locations and types of sensitive biological resources on the project site and adjacent areas.
3. Present the reasons for protecting these resources.
4. Present the meaning of various temporary and permanent habitat protection measures.
5. Provide an understanding of the duties and authority of the Designated Biologist and Biological Monitors.
6. Identify whom to contact if there are further comments and questions about the material discussed in the program.
7. Include a training acknowledgment form to be signed by each worker indicating that they received training and shall abide by the guidelines.
8. Ensure that the specific program can be administered by a competent individual(s) acceptable to the Designated Biologist.

Verification: At least sixty (60) days prior to the start of any site (or related facilities) mobilization, the project owner shall provide to the CPM two (2) copies of the WEAP and all supporting written materials prepared or reviewed by the Designated Biologist and a resume of the person(s) administering the program.

The project owner shall provide in the Monthly Compliance Report the number of persons who have completed the training in the prior month and a running total of all persons who have completed the training to date. The signed training acknowledgement forms shall be kept on file by the project owner for a period of at least six months after the start of commercial operation.
During project operation, signed statements for active project operational personnel shall be kept on file for six months, following the termination of an individual's employment.

Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP)

BIO-5 The project owner shall submit to the CPM for review and approval a copy of the BRMIMP and shall implement the measures identified in the approved BRMIMP. Any changes to the approved BRMIMP must also be approved by the CPM in consultation with CDFG, the USFWS and appropriate agencies to insure no conflict exists.

The final BRMIMP shall identify:

1. All biological resources mitigation, monitoring, and compliance measures proposed and agreed to by the project owner;
2. All Biological Resource Conditions of Certification identified in the Commission's Final Decision;
3. All biological resource mitigation, monitoring and compliance measures required in federal agency terms and conditions, such as those provided in the USFWS Biological Opinion ;
4. All biological resources mitigation, monitoring and compliance measures required in other state agency terms and conditions, such as those provided in the CDFG Take Permit and Streambed Alteration Agreement and ACOE permits;
5. All biological resources mitigation, monitoring and compliance measures required in local agency permits, such as site grading and landscaping requirements;
6. All sensitive biological resources to be impacted, avoided, or mitigated by project construction, operation and closure;
7. All required mitigation measures for each sensitive biological resource;
8. Required habitat compensation strategy, including provisions for acquisition, enhancement, and management for any temporary and permanent loss of sensitive biological resources;
9. A detailed description of measures that will be taken to avoid or mitigate temporary disturbances from construction activities;
10. All locations on a map, at an approved scale, of sensitive biological resource areas subject to disturbance and areas requiring temporary protection and avoidance during construction;
11. Duration for each type of monitoring activity (e.g. pre-construction inspection surveys) and a description of monitoring methodologies and frequency;
12. Performance standards to be used to help decide if/when proposed mitigation is or is not successful;
13. All performance standards and remedial measures to be implemented if performance standards are not met;
14. A discussion of biological resources related facility closure measures;
15. A process for proposing plan modifications to the CPM and appropriate agencies for review and approval; and
16. A copy of all biological resources obtained permits.

Verification: At least sixty (60) days prior to start of any site or related facility mobilization activities, the project owner shall provide the CPM with two copies of the BRMIMP for this project, and provide copies to the CDFG and the USFWS.

The CPM, in consultation with the CDFG, the USFWS and any other appropriate agencies, will determine the BRMIMP's acceptability within forty-five (45) days of receipt.

The project owner shall notify the CPM no less than five (5) working days before implementing any modifications to the approved BRMIMP to obtain CPM approval.

Within thirty (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 items are still outstanding. If there are any permits that have not yet been received when the BRMIMP is first submitted, these permits shall be submitted to the CPM, CDFG, and USFWS as addendum to the BRMIMP within ten (10) days of their receipt.

Closure Plan Measures

BIO-6 The project owner shall incorporate into the planned permanent or unexpected permanent closure plan and the BRMIMP, measures that address the local biological resources.

The planned permanent or unexpected permanent closure plan shall address the following biological resources 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 related facilities;
3. Measures to restore wildlife habitat to promote the re-establishment of native plant and wildlife species; and
4. Revegetation of the plant site and other disturbed areas utilizing appropriate seed mixture.

Verification: At least twelve (12) months prior to commencement of closure activities, the project owner shall address all biological resources related issues associated with facility closure, which is incorporated into the BRMIMP in a Biological Resources Element. The Biological Resources Element shall be incorporated into the Facility Closure Plan and include a complete discussion of the local biological resources and proposed facility closure mitigation measures.

Streambed Alteration Agreement

BIO-7 The project owner shall acquire a Streambed Alteration Agreement from the CDFG, incorporate the terms and conditions into the project's BRMIMP, and implement the terms and conditions during project construction.

Verification: At least 30 days prior to the start of any site or related facilities mobilization activities, the project owner shall submit to the CPM a copy of the final CDFG Streambed Alteration Agreement.

Preventative Design Mitigation Features

BIO-8 The project owner shall modify the project design to incorporate all feasible measures that avoid or minimize impacts to the local biological resources.

Protocol:

a. Design transmission line poles, access roads, pulling sites, and storage and parking areas to avoid identified sensitive resources;

b. Avoid wetland loss; and

c. Design and construct transmission lines and all electrical components to reduce the likelihood of electrocutions of large birds.

Verification: All mitigation measures and their implementation methods will be included in the BRMIMP.

Construction Mitigation Management to Avoid Harassment or Harm

BIO-9 The project owner shall manage their construction site, and related facilities, in a manner to avoid or minimizes impacts to the local biological resources.

Protocol:

a. Temporarily fence and provide wildlife escape ramps for construction areas that contain steep walled holes or trenches if outside of an approved, permanent exclusionary fence. The temporary fence will be hardware cloth or similar materials that are approved by USFWS and CDFG;

b. Make certain all food-related trash will be disposed of in closed containers and removed at least once a week. Feeding of wildlife shall be prohibited;

c. Prohibit non-security related firearms or weapons from being brought to the site;

d. Prohibit pets from being brought to the site; and,

e. Report all inadvertent deaths of sensitive species to the appropriate project representative. Injured animals will be reported to CDFG and the project owner will follow instructions that are provided by CDFG.

Verification: All mitigation measures and their implementation methods will be included in the BRMIMP

B. 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.

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Soils

The 85-acre site being acquired by Applicant is classified as prime farmland. Although 25 acres would clearly no longer be available for agricultural use once the proposed facility is constructed, Applicant has indicated that the remaining 55-acre portion of the parcel would be revegetated following construction. Based on the draft Grading Plans, the existing grade for the SJVEC site ranges from 173.5 to 171.0 feet above mean sea level, and the power plant footprint would be elevated an average of approximately two feet above existing elevation, ranging from 175.5 to 173.5 feet. Estimated quantities for cut and fill of soil are 53,940 and 46,650 cubic yards respectively. During construction, approximately 25 acres would be under permanent development, and much of the balance of 60 acres would be used for construction laydown and parking. (Exs. 2a, p. 4.9-5; 4, p. 65-67.)

Merced Clay/Clay Loam is the primary soil type covering the proposed SJVEC site, and domestic water and sewer line routes. Similar in character to Merced Clay/Clay Loam, 25 other soil types comprise the other linear facilities for the recycled water and natural gas lines. However, characteristics for these other soil types are so similar with respect to drainage and erosion potential, only the primary soil type comprised of Merced Clay/Clay Loam is tabled below. (Exs. 1, Vol. 1, Tables 8.9-2; 2a, p. 4.9-5; 4, pp. 65-67; *see* **Table 1** below.)

Merced soils have developed on mixed igneous and sedimentary alluvium deposited in the lowest portions of the valley basin. These soils formed in floodplains primarily

as over bank flood deposits and were derived chiefly from granitic rocks in the Sierra Nevada. In particular, the fine-grained alluvial sediments upon which Merced-series soils formed were deposited by the Kings River by way of Fresno Slough in flood stage.

SOIL AND WATER Table 1
Soil Types Affected & Characteristics

Primary Soil Name	Slope Class %	Depth Range (ft.)	USDA Texture	Parent Material	Water Erosion Hazard	Permeability (inches/ hour)	Drainage	Revegetation Potential
Merced Clay & Clay Loam (Mk)	0 – 2	>5	Clay, Clay Loam	Alluvial Sediments from Igneous rocks	None / -- -	< .05 to 0.8	Moderately Well	Fair to Excellent

Source: (Ex. 2a, p. 4.9-5.)

Based on the soil characteristics of the SJVEC site and associated linear facilities, erosion potential from water is very low. Additionally, any construction associated with the project will include implementation of plans for control of soil erosion during construction and operation. The revegetation potential is fair to excellent for most of the land along the proposed linear facilities. Although some of the affected soils are considered to be saline and saline-alkali soils, revegetation should be successful provided adequate irrigation is provided while plants are established. (Exs. 2a, p. 4.9-5; 4, p. 67.)

2. Soil and Water Contamination

There are no natural surface water features on or immediately near the proposed SJVEC. An existing irrigation canal bordering along the western property line of the SJVEC site will not be altered to affect its conveyance or drainage pattern. A bridge would be constructed over the approximately 10 foot wide canal for developing site access. Moreover, the proposed SJVEC is not located either within or near the 100-year FEMA-designated flood boundary. The nearest 100-year flood boundary is located approximately 2 miles south of the SJVEC site. (Exs. 2a, p. 4.9-18/19; 4, pp. 64; 66-67.)

Intervenor Freitas, on cross-examination of Staff's expert witness, raised an issue with respect to the impact of flood waters on the proposed SJVEC. The witness testified that the SJVEC facility was designed to withstand a 100-year flood event. Moreover, Staff's expert witness testified that all precautions had been taken to assure adequate containment of hazardous materials in case of a flood event.

> [Mr. Kessler] Based on my review there isn't really that potential. The site is gently sloping. In general, the power plant is being raised in grade roughly two feet above the surrounding natural ground elevation. And that's also true for the berm around the stormwater retention basin. That retention basin is, I believe, proposed to be roughly ten feet deep. And to have a berm where that containment [is] would be sound.
>
> And the secondary containments around all the chemical hazardous material storages, I believe would be bound for any imaginable level of flood that the project could be subjected to. And that's based on reviewing the FEMA 100-year flood plane map, and also looking at the applicant satisfying the criteria, particularly the City of San Joaquin's criteria for stormwater drainage and retention.
>
> Q [Mr. Freitas] Okay. All right. Is there a potential that the applicant could, or the engineer could design a facility, is it particularly feasible, economically and physically feasible to design a facility whereby those types of water flows could be diverted away from the direct impact of any contaminant onsite?
>
> A [Mr. KESSLER, Staff's expert] Yes, and I believe they've done so already. (2/18 RT 87:6-93:18; 102:16-113:9; Exs. 5 & 5A.)

Dr. Greenberg, Staff's expert witness in several areas, repeated and reinforced Mr. Kessler's conclusions about the safety features Applicant has designed into the proposed facility to mitigate against flood impacts, particularly to hazardous materials. (2/18 RT 106:2-113:9.)

A Phase I Environmental Site Assessment (Phase I ESA) was prepared for the SJVEC site. No recognized environmental conditions of potential concern were identified on the SJVEC site itself; however, three potential sites in the vicinity of the proposed SJVEC were reviewed as potential sources of contamination to the SJVEC site. These three sites are described as follows:

Suburban Propane, 22125 W. Colorado Avenue, San Joaquin, CA

Based on a review of county files for the Suburban Propane site, which is approximately ¾ miles up-gradient of the proposed SJVEC, releases of petroleum hydrocarbon compounds such as gasoline and benzene had contaminated soils up to 55 feet in depth. The contamination was identified in conjunction with an underground tank removal in 1989. An investigation in 1990 concluded that groundwater located at 80 feet below ground surface was not affected.

D's Mini Mart, 22023 W. Colorado Avenue, San Joaquin, CA

Located south of the Suburban Propane site, elevated concentrations of petroleum hydrocarbon compounds such as diesel and gasoline were detected in soil samples in conjunction with removal of an underground tank in 1997. Potential effects to groundwater are unknown.

Suburban Propane, 22055 W. Colorado Avenue, San Joaquin, CA

Situated between the two sites listed above, a small gas station operated at this address until 1996. Four underground storage tanks are still present at the site, and the county has ordered the property owner to remove them. Current county records provide no evidence that the tanks have leaked, or that there is any contamination to soil or groundwater. (Ex. 2a, p. 4.9-6.)

Pesticides were detected at the site and Staff is concerned that the levels of such pesticides may be elevated. We have provided for the appropriate handling and management of potentially contaminated soils in the project area in our section on **Waste Management**. Moreover, SJVEC's construction and operation will be regulated under a:

- Sediment and Erosion Control Plan;
- a construction-related SWPPP;
- a SWPPP for Industrial Activity; and
- a General NPDES Storm Water Permit for Construction Activity.

However, since there will be no off-site discharge of storm water, no General NPDES Storm Water Permit for Industrial Activity is required for regulation of storm water during SJVEC operations. (Exs. 2a, p. 4.9-6/19; 2b, p. 2-26; 4, p. 68; 2/19 RT 97:10-143:22; *see* **Soils and Water Conditions 1-3; WASTE-4/6**, *supra*.)

Finally, we conclude that no degradation to local surface water supplies is expected as a result of Applicant's proposed mitigation for avoiding impacts to water supplies and wetlands. For example, it appears that no section 404[55] permits will be necessary because use of directional boring to cross under the California Aqueduct, James Bypass, Fresno Slough, and the Beta Main Canal would avoid disturbance to the waterways. In addition, Applicant has selected alignments for conventional trench and backfill construction that will avoid potential impacts to wetlands at an unnamed agricultural drainage pond along the natural gas pipeline route about 15 miles west of San Joaquin. (Exs. 2a, p. 4.9-17; 4, pp. 64, 66-68.)

3. Water Supply

A. Domestic Water

The City of San Joaquin will supply the proposed SJVEC with a domestic water supply for drinking and general sanitary purpose. The City of San Joaquin's water supply is provided from two groundwater wells, with plans to construct a third well in 2003. Currently, the closest City of San Joaquin well is approximately one-half mile northwest of the project site; however, the planned location of the new City well is approximately one-quarter mile west of the project site. The City of San Joaquin's groundwater production for the year 2000 was 629 acre-feet. SJVEC's domestic water supply needs is estimated at about 1.1 gallons per minute (gpm), or less than three acre feet per year (afy), compared to an existing average supply for all of the City's domestic customers of about 320 gpm. The City does not consider this

[55] Clean Water Act, section 404, 33 U.S.C. section 1257 et seq. (Ex. 2a, p. 4.9-1.)

additional amount of domestic water supply needed for serving the proposed SJVEC to be significant. (Exs. 2a, p. 4.9-8; 4, p. 65.)

Water supply for construction would be subject to the SJVEC contractor purchasing water from the City of San Joaquin, local irrigation districts, or farmers, depending on cost and minimizing transport distances. The SJVEC's linear facilities are particularly dispersed, with the natural gas line route proposed to run for approximately 20 miles to the west, and the recycled water line proposed to run for approximately 20.5 miles to the east of the SJVEC. In order to minimize trucking time and costs, construction water will probably be purchased from a number of suppliers, which may include the City of San Joaquin for grading and dust suppression at the SJVEC site, and other local irrigation districts such as James Irrigation District and/or Fresno Irrigation District for the proposed project's linear facilities. (*Ibid.*)

B. Cooling Water

The SJVEC's cooling water would be exclusively reclaimed water from beneath the infiltration ponds at the Fresno-Clovis Waste Water Treatment Facility (WWTF). The City of Fresno currently discharges approximately 76,000 afy to the infiltration ponds. The City of Fresno and the Fresno Irrigation District (FID) cooperatively operate a series of water reclamation wells that pump the impaired groundwater mound for the irrigation season. FID uses approximately 32,000 afy of this reclaimed water. Applicant and the City of Fresno have entered into a cooperative agreement to extract up to 7,000 afy from the reclaimed groundwater mound to provide cooling water to the SJVEC.[56] (Exs. 2a, p. 4.9-8/17; 2 O, p. 23; 4, pp. 65, 67; 2/19 RT 80:13-81:4; *see* **Condition SOILS&WATER 5**.)

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[56] Recycled water conveyed to the SJVEC will be stored in two 1.5 million gallon storage tanks. A 240,000 gallon portion of the storage will be reserved for fire water supply by establishing separate and lower outlets from the tanks for fire water compared to the elevation of the cooling and process outlets, leaving a normal working volume of up to 2.76 million gallons. The working volume will be adequate to serve the cooling and process needs for up to 17 hours under average water demands of

Groundwater in the vicinity of the WWTF occurs in two "zones," referred to as the shallow and deep zones. The shallow zone is generally at a depth of 120 feet, and the deep zone is approximately 170 to 250 feet below ground surface (bgs). The regional groundwater flow direction is from the northeast to the southwest. The impaired groundwater mound beneath the infiltration basins is approximately 1.5 miles wide and approximately 30 feet above (elevation 230 feet MSL) the baseline water table. The mound is present in both the shallow and deep zones and is highest in the winter and spring months when irrigation demand is low. (Ex. 2a, p. 4.9-9.)

The City of Fresno operates a series of 21 reclamation wells to recover water from the impaired groundwater mound beneath the infiltration ponds. Reclaimed water is extracted from both the shallow and deep zones by these wells. The City of Fresno recently installed three new wells known as "Flowpath" wells to extract a higher percentage of water from the shallow zone. Cooling water for the proposed SJVEC power plant would come from six new "Flowpath" wells to be constructed at the WWTF to supply up to a maximum of 6,455 gpm of reclaimed water. Each new well is estimated to have a capacity of 2000 gpm therefore a maximum of four wells would be needed to meet peak demands. The two remaining wells would be used for standby purposes. (*Ibid.*)

Water quality in the vicinity of the infiltration basins is monitored at each reclamation well and at on-site and off-site monitoring wells. Evaluation of the water quality data from these wells allows monitoring of the groundwater mound and the influence of the reclaimed water on the surrounding background groundwater. The parameters of chloride and total dissolved solids (TDS) are monitored specifically because there is significant difference in measured values for these parameters in the background groundwater and the WWTF effluent. Based on the chloride and TDS data collected to date from the existing wells, the new "Flowpath" wells are effectively extracting

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2,650 gpm, and up to 7 hours under peak water demands of 6,302 gpm. (Ex. 2a, p. 4.9-17; 2/19 RT 81:5-82:1.)

water infiltrated through the basins. (Ex. 2a, p. 4.9-10; 2/19 RT 82:16-84:21; *see* **Conditions 6-8**.)

WWTF's recycled water supply would be primarily used for cooling water, combustion turbine generator (CTG) NO_x suppression injection, power augmentation, and Heat Recovery Steam Generator (HRSG) steam cycle makeup. The SJVEC would require approximately 4.8 million gallons per day (mgd) (3,321 gpm) or 5,342 afy under average conditions, and 9.3 mgd (6,455 gpm) or 7,000 afy under peak demand conditions. The average conditions water use rate of 3,321 gpm is an estimated daily average quantity based on a mixture of operation with and without duct firing at an ambient temperature of 61°F. The peak conditions water use rate of 6,455 gpm is the estimated peak makeup flow with duct firing at an ambient temperature of 118°F. During normal operation, approximately 99 percent of the total water requirement for SJVEC would be for cooling water makeup used to condense steam discharging from the steam turbine. During peak operation, approximately 84 percent of the total water requirements would be for cooling water makeup. (*Ibid.*)

Unrestricted use of WWTP recycled water supply to the SJVEC project would require chlorination. Sodium Hypochlorite (Chlorine) would be added before the recycled water is conveyed approximately 21 miles to the SJVEC, as well as monitored and reapplied as needed for maintaining a minimum chlorine residual of 0.20 mg/L at the SJVEC. Additional treatment would be needed at the SJVEC to obtain water quality required, particularly for the NO_x control, power augmentation, and HRSG's steam supply. Recycled water treatment at the SJVEC would consist of microfiltration, reverse osmosis, and demineralization. (Exs. 1, Vol. 1, §§. 2.2.7 & 8.14; 2a, p. 4.9-12; 2/19 RT 82:2-15; *see* Title 22 CCR.)

4. Process and Sanitary Wastewater

The SJVEC would avoid discharge of process wastewater by utilizing an on-site Zero Liquid Discharge Facility (ZLD). The plant is designed to include the following three primary steps for concentrating all process waste streams:

- First, all process waste streams (oil/water separator effluent, quenched HRSG blowdown, and makeup reverse osmosis reject) are directed to the cooling tower for initial concentration. The cooling tower concentrates these streams near the mineral solubility limit for the constituents of concern (calcium and silica). This concentrated water must be constantly exchanged with water of higher quality to avoid exceeding the solubility limits for calcium and silica in this case. This is done by draining a portion of the concentrated cooling water, in a process called blowdown, and diluting the remaining cooling water with higher quality water, for which the additional water is called makeup water. Cooling tower blowdown is passed through a multimedia filter to remove suspended solids, in order to minimize fouling of downstream ZLD equipment. The filtered effluent is then passed through weak acid cation resin to remove calcium and avoid calcium scale formation in the high TDS reverse osmosis system, and injected with caustic to increase the solubility limit of silica to also minimize the potential for scale formation from silica.
- The high TDS reverse osmosis (R.O.) system represents the second concentrating step for processing waste streams. The high R.O. system recovers approximately 90 percent of the remaining cooling tower impurities. Permeate from the R.O. system contains low levels of calcium and silica, and is returned to the cooling tower. The high TDS reject stream, equivalent to about 10 percent of the influent, is directed to the brine concentrator for final concentration.
- The brine concentrator receives high TDS waste from the weak acid cation vessels and the R.O. reject stream, and evaporates approximately 96 percent of the water contained in this combined stream. Evaporated water is reclaimed using a condenser, and this low-TDS water is then passed through a mixed-bed demineralizer for use in the combustion turbines and HRSG steam cycle. The concentrated brine is sent to a drum dryer where heat is applied to accomplish evaporation, resulting in a dry, non-hazardous solid that is transported to a landfill. (Ex. 2a, p. 4.9-12.)

Sanitary wastewater, estimated at 1.1 gpm, would be discharged to the City of San Joaquin's sanitary wastewater system. Discharge to the City's wastewater system is subject to the City achieving an expansion of its wastewater treatment facility before it accepts any new wastewater influent. The City is currently scheduled to

accomplish the upgrade in its treatment capacity by summer 2002, whereas the operation of the SJVEC is not scheduled to occur before 2006. In the unlikely event that the City's wastewater treatment is not upgraded in time for SJVEC operation, a septic system could be implemented for disposal of SJVEC's wastewater. (Exs. 1, Vol. 1, §§ 2.2.9 & 8.14.3.3; 2a, p. 4.9-13; *see* **Condition SOILS&WATER 4**.)

5. Storm Water

Currently, storm water runoff from the project site percolates into groundwater, and may on occasion drain by furrow to the north. The site is currently farmed and consists of moderately well drained soils. During construction, the Storm Water Retention Basin proposed for plant operations would be developed and used as a Sediment Basin to retain any storm water runoff and to trap sediments during construction. Perimeter ditches would be developed around the power block and switchyard individually, and then routed northwesterly in the ultimate direction of natural drainage into the Sediment Basin to control sediments, facilitate percolation of storm water runoff on-site, and avoid off-site runoff. Applying Best Management Practices (BMPs), during wet weather, the site and associated facilities would be inspected daily, and the day prior to predicted rainfall, to verify the integrity of the storm water and erosion control measures consistent with the Construction Storm Water Pollution Prevention Plan (SWPPP) and Grading/Erosion Control Plans. (Ex. 2a, p. 4.9-13/17-18; *see* **Conditions 1-3**.)

During SJVEC's operation, approximately 25 acres of the 85-acre site will be permanently developed and surfaced with paving and partially covered with roofing. This net increase in impermeability will yield more immediate storm water runoff than the undeveloped site. A comparison of the pre-developed and developed quantities of storm water runoff for the 24.5 acre paved and/or covered portion of the SJVEC site is summarized in **Soils and Water Table-2**. (Exs. 2a, p. 4.9-18; 4, p. 67.)

Soils and Water Table 2
Summary of Pre-Developed and Developed Storm Water Runoff

Return Period of Storm (Years)	Rainfall Depth for 24-Hour Storm (Inches)	Pre-Developed Runoff (Millions of Gallons)	Developed Runoff (Millions of Gallons)
10	2.0	0.41	0.82
25	2.3	0.46	0.93
50	2.5	0.51	1.02
100	2.75	0.56	1.12

Source: (Ex. 2a, p. 4.9-13.)

In order to avoid off-site discharge of higher concentrations of surface water originating from precipitation and SJVEC storm water runoff, a storm water retention basin is planned to temporarily store runoff from non-process areas until it percolates into the ground. Storm water from non-process areas (e.g. driveways and parking lots) would be collected in a system of swales and underground storm drains and conveyed to the storm water retention pond. Storm water and drainage from process areas would be conveyed to the plant process drain system. Chemical storage areas would have sealed containment with the ability to test accumulated rainwater before discharging it into the plant drain system. Storm water from process areas containing oil and oil-filled equipment would first be routed through an oil/water separator and then be reclaimed for use as cooling tower makeup. Storm water would be monitored for quality during the first hour of discharge of the first storm event of the wet season (October 15 through April 30), and during at least one other storm event during the wet season. (Ex. 2a, p. 4.9-13/14, 19; 4, p. 67.)

We conclude that the SJVEC will not create or contribute to runoff water that would exceed the capacity of existing or planned storm water drainage systems, or provide substantial additional sources of polluted runoff. (Ex. 2a, p. 4.9-19; *see* **Condition-1**.)

6. Cumulative Impacts

Staff concluded that there are no cumulative impacts associated with either the proposed domestic water supply from the City of San Joaquin, or the proposed recycled water supply from the WWTF. We agree with Staff that:

- although construction and operational activities associated with the proposed SJVEC project may cause an increase in cumulative wind and water erosion, implementation of our imposed conditions, including the SWPPP, would ensure that SJVEC would not contribute significantly to cumulative erosion and potential sedimentation impacts;
- domestic water supply to SJVEC is minimal, and within the current capacity of City of San Joaquin's domestic water system;
- extraction and reuse of the reclaimed water from the WWTF would have a beneficial effect in aiding the WWTF to control the impaired groundwater mound beneath their infiltration ponds, and in meeting their goals of increased reclaimed water extraction and use;
- The SJVEC's planned use of recycled water for industrial processes would avoid any substantial depletion or degradation of local or regional surface water supplies, particularly fresh water; and
- Implementation of the Conditions of Certification will ensure that the project will conform with all applicable LORS related to soil and water resources. (Exs. 2a, p. 4.9-16, 21/22; 4, p. 68-70; 2/19 RT 79:16-80:12.)

COMMISSION DISCUSSION

We have reviewed Intervenor Freitas's concerns regarding flooding at the SJVEC's proposed site. We accept Staff and Applicant's position that all reasonable measures have been taken to address this issue. In addition, we note that the proposed facility is outside the 100-year flood event. Thus we are persuaded that the facility will withstand a flood event with no impact to the surrounding community. With respect to our conditions, we accept Staff's position. We find that the recommended conditions that Staff has proposed and the parties have agreed upon will best serve to ensure that the SJVEC would operate as intended. (2/21 RT 205:7-9.)

FINDINGS AND CONCLUSIONS

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

1. Soils in the project area have low susceptibility to wind and water erosion.

2. Soils at the site may have elevated levels of pesticides. Applicant will address this potential risk by complying with **Conditions WASTE-4 & 6.**

3. There are no natural surface water features on or immediately near the proposed SJVEC. An existing irrigation canal bordering along the western property line of the SJVEC site will not be altered to affect its conveyance or drainage pattern.

4. The City of San Joaquin will supply the proposed SJVEC with a domestic water supply for drinking and general sanitary purpose.

5. Applicant and the City of Fresno have entered into a cooperative agreement to extract up to 7,000 afy from a reclaimed groundwater mound operated by the Fresno-Clovis Wastewater Treatment Plant to provide cooling and process water to the SJVEC.

6. The SJVEC would require approximately 4.8 million gallons per day (mgd) (3,321 gpm) or 5,342 afy under average conditions, and 9.3 mgd (6,455 gpm) or 7,000 afy of reclaimed water under peak demand conditions.

7. Unrestricted use of WWTP recycled water supply to the SJVEC's project would require treatment.

8. Water quality in the vicinity of the infiltration basins is monitored at each reclamation well and at on-site and off-site monitoring wells.

9. During normal operation, approximately 99 percent of the total water requirement for SJVEC would be for cooling water makeup used to condense steam discharging from the steam turbine. During peak operation, approximately 84 percent of the total water requirements would be for cooling water makeup.

10. Extraction and reuse of the reclaimed water from the WWTF would have a beneficial effect in aiding the WWTF to control the impaired groundwater

mound beneath their infiltration ponds, and in meeting their goals of increased reclaimed water extraction and use.

11. The SJVEC's planned use of recycled water for industrial processes would avoid any substantial depletion or degradation of local or regional surface water supplies, particularly fresh water.

12. The SJVEC would avoid discharge of process wastewater by utilizing an on-site Zero Liquid Discharge Facility.

13. The SJVEC will not create or contribute to runoff water that would exceed the capacity of existing or planned storm water drainage systems, or provide substantial additional sources of polluted runoff.

14. SJVEC's construction and operation will be regulated under a Sediment and Erosion Control Plan; a construction-related SWPPP; a SWPPP for Industrial Activity; and a General NPDES Storm Water Permit for Construction Activity.

15. Because there will be no off-site discharge of storm water, no General NPDES Storm Water Permit for Industrial Activity is required for regulation of storm water during SJVEC operations.

16. No degradation to local surface water supplies is expected as a result of Applicant's proposed mitigation for avoiding impacts to water supplies and wetlands

17. The SJVEC would not contribute significantly to cumulative erosion and potential sedimentation impacts.

18. Implementation of the Conditions of Certification will ensure that the project will conform to all applicable LORS related to soil and water resources.

CONDITIONS OF CERTIFICATION

SOILS&WATER 1: Prior to beginning any site mobilization activities, the project owner shall obtain Energy Commission Staff approval of an Erosion Control Plan. The Erosion Control Plan shall include and be consistent with the standards normally required in the City of San Joaquin's Grading and Excavation Permit, for all project elements. The plan shall be submitted for the Compliance Project Manager's (CPM's) approval and for review and comment by the City of San Joaquin. The plan will also include changes, as appropriate, incorporating the final design of the project.

Verification: The Erosion Control Plan shall be submitted to the CPM and to the City of San Joaquin for review and comments at least 60 days prior to start of any

site mobilization activities. The CPM must approve the final Erosion Control Plan prior to the initiation of any site mobilization activities.

SOILS&WATER 2: Prior to beginning any site mobilization activities, the project owner shall submit a Notice of Intent for construction under the General NPDES Permit for Discharges of Storm Water Associated with Construction Activity to the State Water Resources Control Board (SWRCB), and obtain Energy Commission Staff approval of the related Storm Water Pollution Prevention Plan (SWPPP) for Construction Activity. The SWPPP will include final construction drainage design and specify BMP's for all on and off-site SJVEC project facilities. This includes final site drainage plans and locations of physical BMP facilities/devices.

Verification: At least 60 days prior to the start of any site mobilization activities, the SWPPP for Construction Activity and a copy of the Notice of Intent for construction under the General NPDES Permit for Discharges of Storm Water Associated with Construction Activity filed with the SWRCB, shall be submitted to the CPM. Approval of the SWPPP by the CPM must be received prior to initiation of any site mobilization activities.

SOILS&WATER 3: Prior to initiating project operation, the project owner shall submit the Storm Water Pollution Prevention Plan (SWPPP) for Industrial Activity to the Central Valley Regional Water Quality Control Board for review and comment and to the CPM for review and approval. The SWPPP will include final operating drainage design and specify BMP's and monitoring requirements for the SJVEC project facilities. This includes final site drainage plans and locations of physical BMP's facilities/devices.

Verification: At least 60 days prior to the start of project operation, the project owner shall submit a copy of the SWPPP for Industrial Activities to the CPM for review and approval and to the Central Valley Regional Water Quality Control Board for review and comment. CPM approval of the SWPPP must be received prior to initiation of project operation.

SOILS&WATER 4: Prior to the start of project operation, the project owner shall obtain sanitary wastewater disposal service from the City of San Joaquin.

Verification: At least 60 days prior to the start of project operation, the project owner shall submit evidence to the CPM that it has obtained sanitary wastewater disposal service from City of San Joaquin.

SOILS&WATER 5: Prior to project operation, the project owner shall secure a User Agreement for Reclaimed Water for its process and cooling water supply from the Fresno-Clovis Wastewater Treatment Facility. The project owner shall only use reclaimed groundwater supplied from the City of Fresno-Clovis WWTF as its sole source for cooling and process water supply.

Verification: At least 60 days prior to the start of project operation, the project owner shall submit evidence to the CPM that it has secured a User Agreement for Reclaimed Water for its process and cooling water supply from the Fresno-Clovis Wastewater Treatment Facility.

SOILS&WATER 6: The project owner will install metering devices and record on a monthly basis the total amount of recycled water used by the project. The project owner shall also monitor the water quality of the inflow at the SJVEC monthly. The intent of this monitoring is to make certain the project owner is achieving the objective of using only reclaimed water and that its quality is consistently acceptable for SJVEC use for cooling and process supply. The project owner shall prepare an annual summary, which will include the water quality (constituents to be determined), monthly range and monthly average of daily usage in gallons per day, and total water used by the project on a monthly and annual basis in acre-feet. For subsequent years, the annual summary will also include the yearly range and yearly average water use by the project. This information will be supplied to the CPM.

Verification: The project owner will submit as part of its annual compliance report a water quality and use summary to the CPM for the life of the project. Any significant changes in the water supply for the project during construction or operation of the plant shall be noticed in writing and provided to the CPM for approval at least 60 days prior to the effective date of the proposed change.

SOILS&WATER 7: Prior to project operation, the project owner shall obtain an agreement from the City of Fresno to measure and record groundwater production and water quality for each dedicated reclamation well supplying SJVEC and transmit the data to the project owner. Flow meters with totalizers shall be installed at each well. During project operation, pumping rate and total production shall be recorded monthly. Water quality testing shall comply with the CVRWQCB requirements.

Verification: At least 60 days prior to project operation, the project owner shall provide evidence of its ability to obtain groundwater production and water quality data for each of the dedicated reclamation wells supplying SJVEC. The project owner, or by agreement the City of Fresno, shall begin water production and water quality monitoring when the wells are first used to provide project process and cooling water. Monthly water production records and water quality data shall be submitted to the CPM 6 months after the start of operation, and then subsequently on an annual basis for the life of the project.

SOILS&WATER 8: Prior to project operation, the project owner shall arrange with the City of Fresno for the drilling, construction, and testing of the six reclamation wells for supply of cooling and process water to SJVEC, and provide the initial results of production and water quality testing. In the event inadequate yield or high quality groundwater is produced from the wells, the

City and SJVEC will construct additional reclamation wells to achieve the project objectives of pumping only reclaimed water for power plant cooling.

Verification: At least 90 days prior to project operation, the project owner shall submit results of initial production and water quality testing to the CPM for each of the six reclamation wells for supply of cooling and process water to SJVEC. Wells not meeting the project goals will be identified and recommendations for corrective measures will be provided.

C. CULTURAL RESOURCES

The Energy Commission's primary concerns in its cultural resource analysis are to ensure that all potential impacts are identified and that significant adverse impacts are avoided or reduced to a level of insignificance. The determination of potential impacts to cultural resources from the proposed SJVEC is required by the CEC's siting regulations and CEQA. The aspects of cultural resources addressed in Applicant's and in Staff's analysis are: buildings, sites, structures, objects, historic districts, and Native American cultural concerns.

SUMMARY OF THE EVIDENCE

Indian tribes such as the Southern Valley and Northern Valley Yokuts lived near the project vicinity. The closest historically known tribal groups are the related Pitkachi, Gashou, and Wechikit. These groups had territories in the areas of the San Joaquin River, Kings River and Dry Creek. Another Yokut group called the Tache, or Tucuyu, occupied the area of the Fish Slough and Fresno Slough, near the project area, between Lemoore and Coalinga. The Yokuts comprised 60 or more hunter/gatherer tribal groups throughout Central California that traded amongst themselves and with other groups to the east and west. (Ex. 2a, p. 4.3-3.)

Applicant's witness provided testimony that Applicant conducted a field survey of the proposed site and linear facilities routes. The survey yielded potentially significant cultural resources within the project's Area of Potential Effect (APE). (Ex. 3K, p. 10.)

Staff's witness testified that the results of the records search indicate that buried archaeological resources from the prehistoric and historic periods could be encountered during construction at the project site. If our conditions of certification are properly implemented, the project will comply with applicable LORS for archaeological resources and will reduce impacts below a significant level. (Exs. 2a, p. 4.3-8; 2b, pp. 2-4/11; 3K, p.12; *see* **CUL-1--8**.)

Likewise, Applicant and Staff concluded that there are no known cumulative impacts because the project would not affect any known cultural or historical resources. Should any cultural resources be identified during construction, implementation of the proposed conditions of certification would reduce cumulative impacts to a level of insignificance. Finally, the parties reached agreement on all issues regarding the Conditions of Certification, which we set out below. (Exs. 2a, p. 4.3-9; 2/21 RT 204:6-7.)

We conclude that:

- the project will comply with all applicable federal, state, and local LORS,
- potential impacts, if any, are mitigated to a level of less than significant, and
- that there are no known cumulative impacts.

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, the Committee finds as follows:

1. Cultural resources exist in the general project area.
2. Construction activities associated with the SJVEC project and related facilities present the greatest potential for adverse impacts to cultural resources.
3. The SJVEC project is unlikely to create any cumulative impacts to cultural resources during construction or operation.
4. The Conditions of Certification that follow contain measures that will assure adequate mitigation of impacts to any cultural resources encountered during construction of the project site.

We therefore conclude that implementation of the Conditions of Certification will assure that significant adverse impacts do not occur to cultural resources as a result of project construction or operation, and that implementation of the Conditions of Certification below will assure that the SJVEC project will comply with all applicable LORS pertaining to cultural resources set forth in the appropriate portion of **Appendix A** of this Decision.

CONDITIONS OF CERTIFICATION

CULTURAL RESOURCE SPECIALIST

CUL-1 Prior to the start of ground disturbance, the project owner shall provide the California Energy Commission Compliance Project Manager (CPM) with the name and resume of its Cultural Resources Specialist (CRS), and one alternate CRS, if an alternate is proposed, for approval. The CRS shall be responsible for implementation of all cultural resources conditions of certification.

Protocols:

1. The resume for the CRS and alternate, shall include information that demonstrates that the minimum qualifications specified in the U.S. Secretary of Interior Guidelines, as published in the Code of Federal Regulations, 36 CFR Part 61 are met. In addition, the CRS shall have the following qualifications.

   a. The technical specialty of the CRS shall be appropriate to the needs of this project and shall include a background in anthropology, archaeology, history, architectural history or a related field;

   b. The background of the CRS shall include at least three years of archaeological or historic, as appropriate, resource mitigation and field experience in California;

   c. The resume shall include the names and phone numbers of contacts familiar with the CRS's work on referenced projects.

2. The CRS may obtain qualified cultural resource monitors (CRM) to monitor as necessary on the project. CRM shall meet the following qualifications.

   a. A BS or BA degree in anthropology, archaeology, historic archaeology or a related field and one year experience monitoring in California; or

   b. An AS or AA in anthropology, archaeology, historic archaeology or a related field and four years experience monitoring in California; or

   c. Enrollment in upper division classes pursuing a degree in the fields of anthropology, archaeology, historic archaeology or a related field and two years of monitoring experience in California.

3. The project owner shall ensure that the CRS completes any monitoring, mitigation and curation activities necessary to this project and fulfills all the requirements of these conditions of certification. The project owner shall also ensure that the CRS obtains additional technical specialists, or additional CRM, if needed. The project owner shall also ensure that the CRS evaluates any cultural resources that are newly

discovered or that may be affected in an unanticipated manner for eligibility to the California Register of Historic Resources (CRHR).

Verifications:

1. At least 30 days prior to the start of ground disturbance, the project owner shall submit the name and statement of qualifications of CRS and alternate CRS, if an alternate (1) is proposed, to the CPM for review and approval.

2. If the CPM determines the proposed CRS to be unacceptable, the project owner shall submit another individual's name and resume for consideration. If the CPM determines the proposed alternate to be unacceptable, the project owner may submit another individual's name and resume for consideration. At least 10 days prior to the termination or release of the CRS, the project owner shall submit the resume of the proposed new CRS to the CPM for review and approval.

3. At least 20 days prior to ground disturbance, the CRS shall provide a letter naming anticipated CRMs for the project and stating that the identified CRMs meet the minimum qualifications for cultural resource monitoring required by this condition. If additional CRMs are obtained during the project, the CRS shall provide additional letters to the CPM, identifying the CRMs and attesting to the qualifications. The letter shall be provided one week prior to the CRM beginning on-site duties.

4. At least 10 days prior to the start of ground disturbance, the project owner shall confirm in writing to the CPM that the approved CRS will be available for onsite work and is prepared to implement the cultural resources conditions of certification.

MAPS AND SCHEDULES

CUL-2 1. Prior to the start of ground disturbance, the project owner shall provide the CRS and the CPM with maps and drawings showing the footprint of the power plant and all linear facilities. Maps will include the appropriate USGS quadrangles and a map at an appropriate scale (e.g., 1:2000 or 1" = 200') for plotting individual artifacts. If the CRS requests enlargements or strip maps for linear facility routes, the project owner shall provide copies to the CRS and CPM. The CPM shall approve all submittals.

2. If the footprint of the power plant or linear facilities changes, the project owner shall provide maps and drawings reflecting these changes to the CRS and the CPM. Maps shall identify all areas of the project where ground disturbance is anticipated.

3. If construction of the project will proceed in phases, maps and drawings may be submitted prior to the start of each phase. A letter identifying the proposed schedule of each project phase shall be provided to the CPM.

4. At a minimum, the CRS shall consult weekly with the project superintendent or construction field manager to confirm area(s) to be worked during the next week, until ground disturbance is completed.

5. The project owner shall notify the CRS and CPM of any changes to the scheduling of the construction phases.

Verifications

1. At least 30 days prior to the start of ground disturbance, the project owner shall provide the CRS and the CPM with the maps and drawings.

2. If this is to be a phased project, the project owner shall also provide to the CRS and CPM a letter identifying the proposed schedule of the ground disturbance or construction phases, and the associated dates for submittal of maps and drawings, along with the initial maps and drawings.

3. If there are changes to the footprint for a project phase, revised maps and drawings shall be provided to the CRS and CPM at least 15 days prior to start of ground disturbance for that phase. If there are changes to the scheduling of the construction phases, the project owner shall submit a letter to the CPM within 5 days of identifying the changes.

WORKER ENVIRONMENTAL AWARENESS PROGRAM

CUL-3 Worker Environmental Awareness Program (WEAP) shall be provided, on a weekly basis, to all new employees starting prior to the beginning and for the duration of ground disturbance. The training may be presented in the form of a video. The training shall include:

(a) a discussion of applicable laws and penalties under the law;

(b) samples or visuals of artifacts that might be found in the project vicinity;

(c) information that the CRS, alternate CRS or CRM has the authority to halt construction in the event of a discovery or unanticipated impact to a cultural resource;

(d) instruction that employees are to halt or redirect work in the vicinity of a find and to contact their supervisor and the CRS or CRM;

(e) an informational brochure that identifies reporting procedures in the event of a discovery;

(f) an acknowledgement form signed by each worker indicating that they have received the training; and

(g) a sticker that shall be placed on hard hats indicating that environmental training has been completed.

Verification: The project owner shall provide in the Monthly Compliance Report the WEAP Certification of Completion form of persons who have completed the training in the prior month and a running total of all persons who have completed training to date.

CULTURAL RESOURCE MONITORING AND MITIGATION PLAN

CUL-4 Prior to the start of ground disturbance, the project owner shall submit the Cultural Resources Monitoring and Mitigation Plan (CRMMP), as prepared by the CRS, to the CPM for review and approval. The CRMMP shall identify general and specific measures to minimize potential impacts to sensitive cultural resources.

Protocols: The CRMMP shall include, but not be limited to, the following elements and measures:

1. The following statement shall be placed in the Introduction:

Any discussion, summary, or paraphrasing of the conditions in this CRMMP is intended as general guidance and as an aid to the user in understanding the conditions and their implementation. If there appears to be a discrepancy between the conditions and the way in which they have been summarized, described, or interpreted in the CRMMP, the conditions, as written in the Final Decision, supercede any interpretation of the Conditions in the CRMMP. The Cultural Resources conditions of Certification are attached as an appendix to this CRMMP.

2. A proposed general research design that includes a discussion of research questions and testable hypotheses applicable to the project area. A refined research design will be prepared for any resource where data recovery is required.

3. Specification of the implementation sequence and the estimated time frames needed to accomplish all project-related tasks during ground disturbance, construction, and post-construction analysis phases of the project.

4. 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.

5. A discussion of the inclusion of Native American observers or monitors, the procedures to be used to select them, and their role and responsibilities.

6. A discussion of all avoidance 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.

7. A discussion of the requirement that all cultural resources encountered will be recorded on a DPR form 523 and mapped (may include photos). In addition, all archaeological materials collected as a result of the

archaeological investigations shall be curated in accordance with the State Historical Resources Commission's "Guidelines for the Curation of Archaeological Collections" into a retrievable storage collection in a public repository or museum. The public repository or museum must meet the standards and requirements for the curation of cultural resources set forth at Title 36 of the Federal Code of Regulations, Part 79.

8. A discussion of any requirements, specifications, or funding needed for curation of the materials to be delivered for curation and how requirements, specifications and funding will be met. Also the name and phone number of the contact person at the institution shall be included. In addition, include information indicating that the project owner will pay all curation fees and that any agreements concerning curation will be retained and available for audit for the life of the project.

9. A discussion of the availability and the CRS's access to equipment and supplies necessary for site mapping, photographing, and recovering any cultural resource materials encountered during construction.

10. A discussion of the proposed Cultural Resource Report, which shall be prepared according to Archaeological Resource Management Report (ARMR) Guidelines.

Verification: At least 30 days prior to the start of ground disturbance, the project owner shall provide the CRMMP to the CPM for review and approval. A letter shall be provided to the CPM indicating that the project owner will pay curation fees for any materials collected as a result of the archaeological studies. Ground disturbing activities may not commence until the CRMMP is approved.

SURVEYS, AVOIDANCE AND EVALUATION

CUL-5 1. Prior to the start of ground disturbance within all right of ways, construction laydown area, access roads, or other areas not previously surveyed for the project, cultural resource surveys shall be conducted.

2. If cultural resources are identified in the right of ways, construction laydown area, access roads, or other areas, then avoidance measures shall be provided. If the resources cannot be avoided, then the cultural resource shall be evaluated for eligibility for the CRHR prior to ground disturbance within 100 feet of the identified resource.

3. If a cultural resource cannot be avoided and the resource is determined by the Energy Commission to be eligible for the CRHR, then mitigation measures must be implemented to reduce the impacts to less than significant prior to any ground disturbing activities within 100 feet of the identified resource.

Verifications:

1. At least 30 days prior to start of ground disturbance in the areas described in (1) above, reports (in ARMR format) on the surveys conducted shall be submitted to the CPM for review and approval.

2. The survey report shall include proposed avoidance measures. If the resource cannot be avoided, the survey report(s) shall include an evaluation of the cultural resource(s) for eligibility to the CRHR.

3. Preliminary report(s) (ARMR format) documenting the implementation of mitigation measures shall be provided to the CPM for review and approval prior to ground disturbing activities within 100 feet of the resource.

4. The final report on implementation of mitigation measures shall be incorporated in the Cultural Resources Report (CRR) or appended to the CRR.

MONITORING ACTIVITIES

CUL-6 1. The CRS, alternate CRS, or CRM(s) shall monitor ground disturbance activities full time in the vicinity of the project site, linear facilities and laydown areas, access roads or other ancillary areas to ensure there are no impacts to undiscovered resources or known resources affected in an unanticipated manner. In the event that the CRS determines that full-time monitoring is not necessary in certain locations, a letter providing a detailed justification for the decision to reduce the level of monitoring shall be provided to the CPM for review and approval.

2. CRM(s) shall keep a daily log of any monitoring or cultural resource activities and the CRS shall prepare a weekly summary report on the progress or status of cultural resources-related activities. The CRS may informally discuss cultural resource monitoring and mitigation activities with Energy Commission technical staff.

3. The CRS shall notify the project owner and the CPM within 24 hours, by telephone or e-mail, of any incidents of non-compliance with any cultural resources conditions of certification. The CRS shall also recommend corrective action to resolve the problem or achieve compliance with the conditions of certification.

4. A Native American monitor shall be obtained to monitor ground disturbance in areas where Native American artifacts may be discovered. Informational lists of concerned Native Americans and Guidelines for monitoring shall be obtained from the Native American Heritage Commission. Preference in selecting a monitor shall be given to Native Americans with traditional ties to the area that will be monitored.

5. Cultural resource monitoring activities are the responsibility of the CRS. Any interference with monitoring activities, removal of a CRM from duties assigned by the CRS or direction to a CRM to relocate monitoring

activities by anyone other that the CRS shall be considered non-compliance with these conditions of certification.

Verifications:

1. During the ground disturbance phases of the project, if the CRS wishes to reduce the level of monitoring occurring at the project, a letter identifying the area(s) where the CRS recommends the reduction and justifying the reductions in monitoring shall be submitted to the CPM for review and approval.

2. During ground disturbance, the project owner shall include in the MCRs copies of the weekly summary reports prepared by the CRS regarding project-related cultural resources monitoring. Copies of daily logs shall be retained on-site and made available for audit by the CPM.

3. Within 24 hours of recognition of a non-compliance issue, the CRS shall notify the CPM by telephone of the problem and of steps being taken to resolve the problem. A report that describes the issue, resolution of the issue, and the effectiveness of the resolution measures shall be provided in the next MCR.

4. One week prior to ground disturbance, in areas where there is a potential to discover Native American cultural resources, the project owner shall send notification to the CPM identifying the person(s) retained to conduct Native American monitoring. If efforts to obtain the services of a qualified Native American monitor are unsuccessful, the project owner shall immediately inform the CPM who will initiate a resolution process.

DRY CREEK CANAL AND TRANQUILLITY IRRIGATION DISTRICT RESERVOIR

CUL-7 If the Dry Creek Canal or the Tranquillity Irrigation District Reservoir cannot be returned to their original contour and appearance, then the Dry Creek Canal and/or the Tranquillity Irrigation District Reservoir shall be evaluated for the CRHR prior to ground disturbance. If Dry Creek Canal or the Tranquillity Irrigation District Reservoir is eligible for the CRHR, then the project owner shall propose and submit mitigation measures to the CPM for approval. The mitigation measures shall be completed prior to alteration of the Dry Creek Canal and/or the Tranquillity Irrigation District Reservoir.

Verification: If the Dry Creek Canal or the Tranquillity Irrigation District Reservoir cannot be returned to the original contour and appearance, at least 30 days prior to project-related ground disturbance associated with the Dry Creek Canal and/or the Tranquillity Irrigation District Reservoir the project owner shall provide to the CPM for review and approval a determination of eligibility for the resource that cannot be restored to its original appearance and the mitigation measures that would reduce this impact to less than significant.

CULTURAL RESOURCES REPORT

CUL-8 The project owner shall submit the Cultural Resources Report (CRR) to the CPM for approval. The CRR shall report on all field activities including dates, times and locations, findings, samplings and analysis. All survey reports, DPR 523 forms and additional research reports not previously submitted to the California Historic Resource Information System (CHRIS) shall be included as an appendix to the CRR.

Verification: The project owner shall submit the subject CRR within 90 days after completion of ground disturbance (including landscaping). Within 10 days after CPM approval, the project owner shall provide documentation to the CPM that copies of the CRR have been provided to the curating institution (if archaeological materials were collected), the State Historic Preservation Office and the CHRIS.

D. GEOLOGICAL AND PALEONTOLOGICAL RESOURCES

The Energy Commission's primary objective in its geological and paleontological resource analyses is to ensure that there will be no significant adverse impacts to significant geologic and paleontological resources during project construction, operation, and closure. Paleontological resources include the fossilized remains or trace evidence of prehistoric plants or animals, which are preserved in soil or rock. These fossils are significant because they help document the evolution of particular groups of organisms and the environment in which they lived.

SUMMARY OF THE EVIDENCE

GEOLOGY

Applicant provided testimony on the project's potential impacts to geological resources, which concluded that the project would have no significant adverse effect on geologic resources. The generating facility and all of the associated linear facilities will be designed and constructed in accordance with California Building Code (CBC), Seismic Zone 3 requirements to minimize the exposure of people to risks associated with large seismic events. (Ex. 3L, p. 10.)

Soil liquefaction, expansion, and ground subsidence were addressed in the parties' analysis. We find that our conditions of certification will mitigate any impacts associated with soil disturbance at the site from construction and operational activities. In addition, the parties' concluded that the SJVEC will not produce any significant negative cumulative impact to geologic resources. (Exs. 2a, pp. 5.2-2/7; 3H, p. 26-27.)

PALEONTOLOGICAL RESOURCES

Applicant sponsored testimony on the project's potential impacts to paleontological resources. Applicant concluded that the project site's filling and grading is not

expected to result in significant adverse impacts to paleontological resources, as the ground surface in this area is already relatively flat and has already been disturbed by farming. (Ex. 3L, p. 42.)

Applicant testified that:

- no previously reported fossils are known to directly underlie the proposed project plant site, however,
- a previously recorded fossil site in stratigraphic units that underlie the proposed project site suggests that there is a high potential for additional similar fossil remains to be uncovered by excavations related to the project. (*Ibid.*)

Likewise, Staff's analysis concluded that the proposed SJVEC site may contain significant paleontologic resources such that mitigation procedures will be necessary. Staff has proposed Conditions of Certification, below, that would ensure that any potential impacts upon paleontological resources will be reduced to a less than significant level should such resources be encountered during construction, operation, or closure of the project. (Ex. 2a, p. 5.2-5; *see* **PAL-1-7**.)

Finally, Applicant and Staff made recommendations for changes to clarify or correct certain language of our Conditions of Certification. The parties reached agreement on acceptable language, which we impose below in our Conditions of Certification. (2/21 RT 204:15-17.)

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, the Committee finds as follows:

1. Implementation of the Conditions of Certification will reduce geological and paleontological impacts to less than significant.
2. The SJVEC project is unlikely to create any cumulative impacts to geologic or paleontologic resources during construction or operation.
3. The Conditions of Certification will ensure that activities associated with construction and operation of the project will cause no significant cumulative adverse impact to geological or paleontological resources.

4. With implementation of the Conditions of Certification, the SJVEC project will comply with all applicable LORS.

We therefore conclude that the project will not cause any significant adverse direct, indirect, or cumulative impacts to geological, mineral, or paleontological resources, and will comply with all applicable LORS.

CONDITIONS OF CERTIFICATION

PAL-1: The project owner shall provide the CPM with the resume and qualifications of its Paleontological Resource Specialist (PRS) for review and approval. If the approved PRS is replaced prior to completion of project mitigation and submittal of the Paleontological Resources Report, the project owner shall obtain CPM approval of the replacement PRS. The project owner shall submit to the CPM to keep on file, resumes of the qualified Paleontological Resource Monitors (PRMs). If a PRM is replaced, the resume of the replacement PRM shall also be provided to the CPM.

Protocols:

1. The PRS's resume shall include the names and phone numbers of references provided for checking employment or qualifications. The resume shall also demonstrate to the satisfaction of the CPM, the appropriate education and experience to accomplish the required paleontological resource tasks.

2. As determined by the CPM, the PRS shall meet the minimum qualifications for a vertebrate paleontologist as described in the Society of Vertebrate Paleontology (SVP) guidelines of 1995. The experience of the PRS shall include the following:

(a) institutional affiliations or appropriate credentials and college degree;

(b) ability to recognize and collect fossils in the field;

(c) local geological and biostratigraphic expertise;

(d) proficiency in identifying vertebrate and invertebrate fossils; and

(e) the PRS shall have at least three years of paleontological resource mitigation and field experience in California, and at least one year of experience leading paleontological resource mitigation and field activities.

3. The project owner shall ensure that the PRS obtains qualified paleontological resource monitors to monitor as he or she deems

necessary on the project. Paleontologic resource monitors (PRMs) shall have the equivalent of the following qualifications:

(a) BS or BA degree in geology or paleontology and one year experience monitoring in California; or

(b) AS or AA in geology, paleontology or biology and four years experience monitoring in California; or

(c)) Enrollment in upper division classes pursuing a degree in the fields of geology or paleontology and two years of monitoring experience in California.

Verifications:

1. At least sixty (60) days prior to the start of ground disturbance, the project owner shall submit a resume and statement of availability of its designated PRS for on-site work.

2. At least twenty (20) days prior to ground disturbance, the PRS or project owner shall provide a letter with resumes naming anticipated monitors for the project and stating that the identified monitors meet the minimum qualifications for paleontological resource monitoring required by the condition. If additional monitors are obtained during the project, the PRS shall provide additional letters and resumes to the CPM attesting to the monitor's qualifications. The letter shall be provided to the CPM no later than one week prior to the monitor beginning on-site duties.

3. Prior to the termination or release of a PRS, the project owner shall submit the resume of the proposed new PRS to the CPM for review and approval.

PAL-2: The project owner shall provide to the PRS and the CPM, for approval, maps, and drawings showing the footprint of the power plant and all related facilities. Maps shall identify all areas of the project where ground disturbance is anticipated. If the PRS requests enlargements or strip maps for linear facility routes, the project owner shall provide copies to the PRS and CPM. The site grading plan and the plan and profile drawings for the utility lines would normally be acceptable for this purpose. The plan drawings should show the location, depth, and extent of all ground disturbances and can be 1 inch = 40 feet to 1 inch = 100 feet range. If the footprint of the power plant or linear facility changes, the project owner shall provide maps and drawings reflecting these changes to the PRS and CPM.

If construction of the project will proceed in phases, maps and drawings may be submitted prior to the start of each phase. A letter identifying the proposed schedule of each project phase shall be provided to the PRS and CPM. Prior to work commencing on affected phases, the project

owner shall notify the PRS and CPM of any construction phase scheduling changes.

At a minimum, the project owner shall ensure that the PRS or PRM consults weekly with the project superintendent or construction field manager to confirm area(s) to be worked during the next week, until ground disturbance is completed.

Verifications:

1. At least thirty (30) days prior to the start of ground disturbance, the project owner shall provide the maps and drawings to the PRS and CPM.

2. If there are changes to the footprint of the project, revised maps and drawings shall be provided to the PRS and CPM at least fifteen (15) days prior to the start of ground disturbance.

3. If there are changes to the scheduling of the construction phases, the project owner shall submit a letter to the CPM within five (5) days of identifying the changes.

PAL-3: The project owner shall ensure that the PRS prepares, and submits to the CPM for review and approval, a Paleontological Resources Monitoring and Mitigation Plan (PRMMP) to identify general and specific measures to minimize potential impacts to significant paleontological resources. Approval of the PRMMP by the CPM shall occur prior to any ground disturbance. The PRMMP shall function as the formal guide for monitoring, collecting and sampling activities and may be modified with CPM approval. This document shall be used as a basis for discussion in the event that on-site decisions or changes are proposed. Copies of the PRMMP shall reside with the PRS, each monitor, the project owner's on-site manager, and the CPM.

The PRMMP shall be developed in accordance with the guidelines of the Society of the Vertebrate Paleontology (SVP, 1995) and shall include, but not be limited to, the following:

1. Assurance that the performance and sequence of project-related tasks, such as any literature searches, pre-construction surveys, worker environmental training, fieldwork, flagging or staking; construction monitoring; mapping and data recovery; fossil preparation and collection; identification and inventory; preparation of final reports; and transmittal of materials for curation will be performed according to the PRMMP procedures;
2. Identification of the person(s) expected to assist with each of the tasks identified within the PRMMP and the conditions for certification;

3. A thorough discussion of the anticipated geologic units expected to be encountered, the location and depth of the units relative to the project when known, and the known sensitivity of those units based on the occurrence of fossils either in that unit or in correlative units;

4. A discussion of the locations of where the monitoring of project construction activities is deemed necessary, and a proposed schedule for the monitoring and sampling;

5. A discussion of the procedures to be followed in the event of a significant fossil discovery, halting construction, resuming construction and how notifications will be performed;

6. A discussion of equipment and supplies necessary for collection of fossil materials and any specialized equipment needed to prepare, remove, load, transport, and analyze large-sized fossils or extensive fossil deposits;

7. Procedures for inventory, preparation, and delivery for curation into a retrievable storage collection in a public repository or museum, which meets the Society of Vertebrate Paleontology standards and requirements for the curation of paleontological resources;

8. Identification of the institution that has agreed to receive any data and fossil materials collected, requirements or specifications for materials delivered for curation and how they will be met, and the name and phone number of the contact person at the institution; and

9. A copy of the paleontological conditions of certification.

Verification: At least thirty (30) days prior to ground disturbance, the project owner shall provide a copy of the PRMMP. The PRMMP shall include an affidavit of authorship by the PRS, and acceptance of the project owner evidenced by a signature.

PAL-4: Prior to ground disturbance and for the duration of construction, the project owner and the PRS shall prepare and conduct weekly CPM-approved training for all project managers, construction supervisors and workers who are involved with or operate ground disturbing equipment or tools. Workers shall not excavate in sensitive units prior to receiving CPM-approved worker training. Worker training shall consist of and initial in-person PRS training during the project kick-off for those mentioned above. Following initial training, a CPM-approved video or in-person training may be used for new employees. The training program may be combined with other training programs prepared for cultural and biological resources, hazardous materials, or any other areas of interest or concern.

The Worker Environmental Awareness Program (WEAP) shall address the potential to encounter paleontological resources in the field, the

sensitivity, and importance of these resources, and the legal obligations to preserve and protect such resources.

The training shall include:

1) A discussion of applicable laws and penalties under the law;
2) Good quality photographs or physical examples of vertebrate fossils shall be provided for project sites containing units of high paleontologic sensitivity;
3) Information that the PRS or PRM has the authority to halt or redirect construction in the event of a discovery or unanticipated impact to a paleontological resource;
4) Instruction that employees are to halt or redirect work in the vicinity of a find and to contact their supervisor and the PRS or PRM;
5) An informational brochure that identifies reporting procedures in the event of a discovery;
6) A Certification of Completion of WEAP form signed by each worker indicating that they have received the training; and
7) A sticker that shall be placed on hard hats indicating that environmental training has been completed.

Verifications:

1. At least thirty (30) days prior to ground disturbance, the project owner shall submit the proposed WEAP including the brochure with the set of reporting procedures the workers are to follow.

2. If the project owner is planning on preparing a video at the initial training for use in interim training, the video shall be provided to the CPM for review and approval within seven days of the first training. Any revised videos shall be submitted for CPM review and approval within seven days of the receipt of responses from the CPM.

3. If an alternate paleontological trainer is requested by the project owner, the resume and qualifications of the trainer shall be submitted to the CPM for review and approval prior to installation of an alternate trainer. Alternate trainers shall not conduct training prior to CPM authorization.

4. In the Monthly Compliance Report, the project owner shall provide the WEAP Certification of Completion forms with the names of those trained and the trainer or type of training offered that month. The Monthly Compliance Report shall also include a running total of all persons who have completed the training to date.

PAL-5: The project owner shall ensure that the PRS and PRM(s) monitor consistent with the PRMMP, all construction-related grading, excavation, trenching, and augering in areas where potentially fossil-bearing materials have been identified. In the event that the PRS determines full time monitoring is not necessary in locations that were identified as potentially fossil bearing in the PRMMP, the project owner shall notify and seek the concurrence of the CPM.

The project owner shall ensure that the PRS and PRM(s) have the authority to halt or redirect construction if paleontological resources are encountered. The project owner shall ensure that there is no interference with monitoring activities unless directed by the PRS. Monitoring activities shall be conducted as follows:

1) Any change of monitoring different from the accepted program presented in the PRMMP shall be proposed in a letter or email from the PRS and the project owner to the CPM prior to the change in monitoring. The letter or email shall include the justification for the change in monitoring and submitted to the CPM for review and approval.

2) The project owner shall ensure that the PRM(s) keeps a daily log of monitoring of paleontological resource activities. The PRS may informally discuss paleontological resource monitoring and mitigation activities with the CPM at any time.

3) The project owner shall ensure that the PRS notifies the project owner and the CPM within 24 hours of the occurrence of any incidents of non-compliance with any paleontological resources conditions of certification. The PRS shall recommend corrective action to resolve the issues or achieve compliance with the conditions of certification.

4) Either the project owner or the PRS shall notify the CPM within 24 hours of a significant find, or Monday morning in the case of a weekend) when there has been a significant find or a halt of construction activities due to the discovery of fossil materials..

5) The project owner shall ensure that the PRS prepares a summary of the monitoring and other paleontological activities that will be placed in the Monthly Compliance Reports. The summary will include the name(s) of PRS or PRM's active during the month; general descriptions of training and monitored construction activities and general locations of excavations, grading, etc. A section of the report will include the geologic units or subunits encountered; descriptions of sampling within each unit; and a list of identified fossils. A final section of the report will address any issues or concerns about the project relating to paleontologic monitoring including any incidents of

non-compliance and any changes to the monitoring plan that have been approved by the CPM. If no monitoring took place during the month, the project owner shall include an explanation in the summary as to why monitoring was not conducted.

Verification: The project owner shall ensure that the PRS submits the summary of monitoring and paleontological activities in the Monthly Compliance Report.

PAL-6: The project owner shall ensure preparation of a Paleontological Resources Report (PRR) by the designated PRS. The PRR shall be prepared following completion of the ground disturbing activities. The PRR shall include an analysis of the collected fossil materials and related information and submitted to the CPM for review and approval.

The report shall include, but is not limited to, a description and inventory of collected fossil materials; a map showing the location of paleontological resources encountered; determinations of sensitivity and significance; and a statement by the PRS that project impacts to paleontological resources have been mitigated below the level of significance.

Verification: Within 90 days after completion of ground disturbing activities, including landscaping, the project owner shall submit the Paleontological Resources Report under confidential cover to the CPM.

PAL-7: The project owner, through the designated PRS, shall ensure that all components of the PRMMP are adequately performed including the collection of fossil materials, preparation of fossil materials for analysis, analysis of fossils, fossil identification and inventory, the preparation of fossils for curation, and the delivery for curation of all significant paleontological resource materials encountered and collected during the project construction.

Verification: The project owner shall maintain in their compliance file copies of signed contracts or agreements with the designated PRS and other qualified research specialists. The project owner shall maintain these files for a period of three years after completion and approval of the CPM-approved PRR. The project owner shall be responsible to pay any curation fees charged by the museum for fossils collected and curated as a result of paleontological monitoring and mitigation. A copy of the transmittal submitting the fossils to the curating institution shall be provided to the CPM.

VII. 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 instance, we believe the technical elements discussed in this portion of our Decision are those constituting the most likely areas of potential local concern.

A. LAND USE

The discussion of land use impacts for the SJVEC focuses on two main issues:

- the proposed project's plan to conform with local land use plans, ordinances, and policies; and
- its potential 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 OF THE EVIDENCE

1. The Proposed Site and Surrounding Areas

The proposed power plant site is located at the southeast end of the City of San Joaquin (City). The City's zoning ordinance implements its General Plan and includes two classifications in which manufacturing uses such as the proposed SJVEC are permitted:

- The "M" Manufacturing zone applies only to areas designated for heavy manufacturing and is designated "HM" by the General Plan.
- "M-2" Manufacturing Park zone may be applied to areas designated on the General Plan as HM or Light Manufacturing (LM).

The manufacturing zones provide standards for protecting the public health and welfare, and compatibility with surrounding land uses, including visual screening, and traffic circulation. On May 20, 2002, the City annexed the SJVEC's proposed site, and designated it under the General Plan as HM.[57] (Ex. 2a, p. 5.4-4/6.)

The City's developed portions to the north and west within close proximity to the site, the site, and surrounding land are flat. The nearest residences are to the west, approximately one-half mile away from the proposed facility. Adjacent to the northern end of the site is a variety of largely vacant commercial and industrial buildings, previously used as agricultural packing houses, computer assembly facility, and retail outlets. The site is currently in cotton production, and other existing uses at the site include power lines and an irrigation canal.[58] (Exs. 2a, p. 5.4-6; 3M, p. 36.)

The SJVEC is proposed to be built on a portion of a single parcel, which is divided into five lots totaling approximately 85 acres.[59] Of the 85-acre site:

- 25 acres would be permanently cleared, graded, filled, and paved;
- 20 acres would be temporarily used as a construction lay-down area, and then returned to agricultural use following construction;
- the undeveloped portion of the project site (60 acres) Applicant would offer for lease as agricultural land for an indefinite period, until it is ready to be developed. (Ex. 2a, p. 5.4-6.)

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[57] The San Joaquin Municipal Code, § 17.60.020, includes thermal power plants as a permitted use on M-zoned land. Ordinarily, all projects proposed in this zone must undergo Site Development Review and obtain a Special Use Permit from the City. However, for power plant licensing, which falls under our exclusive jurisdiction under the Warren-Alquist Act, the City will avoid the Site Development Review and Special Use Permit evaluation process. Instead, it will comment on the project's consistency with its LORS, and conditions it would normally place on a Special Use Permit, through an advisory resolution. (Ex. 2a, p. 5.4-10; see Public Resources Code § 25500.)

[58] Land use in the western part of Fresno County where the SJVEC site is located comprises various areas of flat to slightly hilly open space terrain primarily used for agricultural purposes. Regional recreational areas include Fresno Slough, a bird watching area, located 5 miles southwest of the SJVEC site, and the Mendota Wildlife Protection Area some 8 miles to the north. (Exs. 1, Vol. 1, p. 8.2-2; 2a, p. 5.4-6/8; 3M, p. 36.)

[59] Assessor Parcel Number (APN) 33-020-31, the SJVEC's proposed parcel, was annexed by the City effective on May 20, 2002. Calpine has an option to purchase four of the lots at the project site, which constitute the vast majority of the parcel. (Ex. 2a, p. 5.4-6.)

2. Electrical Transmission Line

The proposed 230-KV electrical transmission line for the project would:

- be extended to the Helm substation, located 0.25 miles south of the SJVEC site;
- mainly cross agricultural land in Fresno County, south of the proposed SJVEC site;
- cross land zoned Exclusive and Limited Agriculture (AE20, AE40 & AL20).[60] (Exs. 2a, p. 5.4-6/7; 3M, p. 36.)

3. Natural Gas Supply Line

Natural gas would be delivered to the SJVEC site via a new 20-mile long, 24-inch pipeline from PG&E's existing main pipelines near Manning Avenue and Jerrold Avenue, 4 miles east of I-5.[61] In Fresno County's jurisdiction, the pipeline would run through land cultivated in field and row crops and through an orchard adjacent to existing road rights-of-way. These agricultural lands are zoned AE20 and AE40. In the City, the gas line route would also follow public streets adjacent to agricultural and urban uses, including manufacturing, commercial and residential. During construction, 169.7 acres of cultivated land would be temporarily taken out of production primarily along Manning Avenue. (*Ibid.*)

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[60] The 70-kV sub-transmission line that currently crosses the project site would be re-routed to cross similarly designated and zoned land. (Ex. 2a, p. 5.4-7.)

[61] Natural gas and reclaimed water pipeline construction will require 70/75-foot-wide construction easements and 15/30-foot-wide permanent easements to facilitate leak inspection and related monitoring and maintenance over the life of the project. The pipelines would be aligned along the edge of public roadways. Pipeline crossings of wetlands, canals, aqueducts, and major roads would be accomplished using either jack and bore techniques, or directional boring. Staging areas would be required for equipment, but should not extend substantially beyond the pipeline's linear construction right-of-way. (Ex. 2a, p. 5.4-7.)

4. Reclaimed Water Supply Line

Up to 7,000 acre-feet per year of secondary effluent would be supplied to the SJVEC via a new 21-mile, 27-inch pipeline from the Fresno-Clovis Wastewater Treatment Facility (WWTF) located east of San Joaquin. In unincorporated Fresno County, the reclaimed water pipeline would run through agricultural land (AE20 and AE40) adjacent to existing road rights-of-way, cultivated in field and row crops, vineyards, and orchards. In the City, its route would also follow public streets adjacent to urban uses.[62] (Ex. 2a, p. 5.4-7.)

5. Applicant's and Staff's Conclusions

Applicant and Staff concluded that the SJVEC project would:

1. be located on the south end of the City of San Joaquin and, as such, would not divide an established community.

2. be consistent with the City's General Plan and Zoning Ordinance, and the County General Plan and Zoning Ordinance.

3. cause a loss of prime agricultural land at the SJVEC plant site. However, loss of prime agricultural land would be mitigated to a less than significant level with the adoption of **LAND-2**.

4. create a temporary disturbance to important farmlands along the natural gas and water pipelines and transmission line corridors.

5. compensate farmers for their lost production in accordance with agreements to be entered into with them. Therefore, disturbance to important farmlands will not be significant.

6. not include land covered by a Habitat Conservation Plan or by a Williamson Act contract. Therefore, it would neither conflict with, nor adversely affect, such lands.

7. be compatible with existing and planned land uses.

8. not cause any cumulative land use impact. (Exs. 2a, p. 5.4-16/17; 3M; 36.)

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[62] During construction, 178.2 acres of cultivated land would be temporarily taken out of production (Calpine 2002). (Ex. 2a, p. 5.4-7.)

We agree with these conclusions and we adopt them as our own. Finally, the parties agree on the contents of our Conditions of Certification, which we set forth below. (2/21 RT 204:21-22.)

FINDINGS AND CONCLUSIONS

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

1. The proposed SJVEC facility is to be located in the City of San Joaquin in an area zoned for heavy manufacturing, an appropriate use under the City's General Plan.

2. The SJVEC project would convert 25 acres of prime farmland to non-agricultural use creating a potentially significant impact under CEQA.

3. The SJVEC's natural gas and reclaimed water pipelines would run through agricultural zoned lands cultivated in field and row crops, and vineyards adjacent to existing road rights-of-way.

4. The SJVEC's natural gas and reclaimed water pipelines would require approximately 70/75-foot-wide construction easements and a 15/ 30-foot-wide permanent easements to facilitate leak inspection and related monitoring and maintenance over the life of the project. During construction, 178.2 acres of cultivated land would be temporarily taken out of production.

5. Natural gas and reclaimed water pipeline crossings of wetlands, canals, aqueducts, and major roads would be accomplished using either jack and bore techniques, or directional boring. Staging areas would be required for equipment, but should not extend substantially beyond the pipeline's linear construction right-of-way.

6. The SJVEC project would not disrupt or divide the physical arrangement of any established community; nor would it preclude or unduly restrict any existing or planned land uses in the region.

7. The SJVEC's construction would not contribute substantially to any cumulative land use impact. (Exs. 2a, p. 5.4-15/17; 3M, p. 36-39.)

We therefore conclude that the SJVEC will not create any significant direct or indirect adverse land use impacts.

CONDITIONS OF CERTIFICATION

LAND-1 The project owner shall obtain the necessary approval(s) from the City and complete any lot merger or lot line adjustments necessary to ensure that the proposed project, including associated facilities and improvements, but excluding linear facilities, will be located on a single legal lot. That single lot shall include sufficient buffer areas to protect the health and safety of current or future occupants of adjacent lots. It shall remain a single lot during operation of the power plant, i.e., until such time as the facility is decommissioned in accordance with local and state requirements.

Verification: At least 30 days prior to the start of construction, the project owner shall provide the CPM with proof of completion of the above adjustments or satisfactory evidence that no such adjustments are necessary. Prior to submitting an application to the City, the project owner shall submit the proposed lot configuration to the CPM for review and approval.

LAND-2 Prior to the start of construction, the project owner shall submit an agricultural mitigation plan subject to the CPM for approval. The agricultural mitigation plan shall describe how the project owner will mitigate for the permanent conversion of an estimated 25 acres of agricultural land to non-agricultural use for the construction of the power generation facility. The plan shall describe the project owner's off-site mitigation, involving one or both of the following:

1. The purchase of comparable land or agricultural conservation easements at a one-to-one ratio for agricultural land converted by the project owner. The agricultural mitigation plan shall describe the approach for management in perpetuity, including funding, endowment, maintenance, and monitoring; or
2. The project owner's payment of monies to the American Farmland Trust or some other entity acceptable to the Commission for the purpose of purchasing agricultural mitigation land or conservation easements

Verifications:

1. Thirty (30) days prior to the start of construction, the project owner shall provide to the CPM for his/her approval a copy of document(s) confirming the executed purchase of land or agricultural conservation easements, or the transfer of funds to a third party entity for the purpose of purchasing agricultural land or conservation easements.

2. Sixty (60) days prior to the start of construction, the project owner shall provide the CPM with the final agricultural mitigation plan for approval. If this plan is not managed by the project owner it shall include a copy of the final agreement signed between the project owner and the American Farmland Trust, or a similar entity acceptable to the Commission that is publicly recognized and authorized to hold agricultural conservation easements.

B. TRAFFIC AND TRANSPORTATION

In this section, we examine the extent to which the SJVEC will affect the regional and local transportation systems near the project. During these licensing proceedings, we identified the roads and routings to be used during construction and operation phases of the project; analyzed potential traffic problems associated with those routings; examined whether adequate parking capacity was available and whether the project would lead to inadequate emergency access; and analyzed the frequency of and routes associated with the delivery of hazardous materials.

Summary of the Evidence

The proposed SJVEC site is approximately 40 miles southwest of the City of Fresno, in the southwestern portion of the San Joaquin Valley. The City of Hanford is located approximately 30 miles to the southeast of the project site. Interstate 5 (I – 5) is a four-lane freeway running from north to south through the San Joaquin Valley and is located 22 miles west of the project site. State Route (SR) 99 runs parallel to I–5 and is approximately 30 miles east of the SJVEC site. SR 33 runs north to south and is located 12 miles west of the project site. SR 145 and SR 180 are located 7.5 miles east and 9 miles north of the proposed SJVEC, respectively. The closest major airport to the project site is the Fresno-Yosemite International Airport.[63] Railroad service for the area is provided by the San Joaquin Valley Railroad (SJVR), which operates the line that is adjacent to the project site's northern and eastern boundaries.[64] The line runs north to south through the San Joaquin Valley. The site is located in the southwestern portion of the City of San Joaquin, approximately five

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[63] All public airports in the project's vicinity are greater than 10 miles from the project site. The Fresno-Yosemite International Airport is located in Fresno, nearly 43 miles from the project site. One active airstrip (apparently used for crop dusting activities) is in the immediate vicinity of the SJVEC. The landing strip is approximately 3.47 nautical miles from the project site's western boundary and is located on the north side of Manning Avenue, just east of the Fresno Slough. (Ex. 2a, p. 4.10-12.)

[64] All SJVEC related traffic would be directed to the project site using only the railroad crossing at West Colorado and Manning Avenues, which is striped, marked, and signalized. (Ex. 2a, p. 4.10-12.)

miles southeast of the town of Tranquillity and seven miles northwest of the town of Helm. (Exs. 1, Vol. 1, p. 8.8-1; 2a, pp. 4.10-2/3; 3 O, p. 76.)

Manning Avenue, a two-lane expressway adjacent to the site's northern boundary, is a major arterial that connects west with I–5. West Colorado Avenue is a major arterial, two-lane expressway that runs from northwest to southeast along the proposed SJVEC's northeastern boundary. West Springfield Avenue is a two-lane local road running east to west along the site's southern boundary. West Cherry Lane is a private two-lane road west of the project site. West Cherry Lane would be improved to Fresno County standards and would serve as the primary access road to the SJVEC site. SJVR operates the railway adjacent to the project site's northern and eastern boundaries. (Ex. 2a, p. 4.10-2/5; *see* **Figures 1 & 2**.)

Applicant's witness testified that:

- significant effects on the local transportation system are not expected from power plant construction or operational activities;
- there are no significant cumulative traffic impacts; and
- with implementation of the Conditions of Certification recommended by Staff, any potential traffic and transportation impacts will be reduced to a less than significant level. (Ex. 3 O, pp. 75-79.)

Staff's witness testified that:

- currently, all the state highways in the vicinity of the project are operating at or above a LOS C;[65]
- some segments of I–5 and SR 99 will decrease to a LOS D during SJVEC's construction period;
- the average daily work force for the power plant and the transmission line would be 205 workers. Based on the applicant's assumptions of a 1.3

[65] Level of Service (LOS) is a measure of roadway performance that assigns a letter grade A-F describing various ranges of operating conditions. A LOS A represents free flow and an uninterrupted traffic stream. A LOS F is characterized by stop-and-go waves and traffic saturation with delays. LOS is determined by using a Volume to Capacity (V/C) Ratio to calculate roadway efficiency. V/C is indicative of traffic conditions, speeds, and driver maneuverability on given roadway segments. LOS A, B, and C are represented by V/C ratios below 0.80. LOS D is between 0.80 and 0.90, LOS E has a V/C between 0.90 and 1.00, and LOS F is represented by a V/C ratio greater than 1.00. The criteria for LOS on state highways are established by Caltrans policies. A LOS D is considered as a minimum acceptable level for planning purposes. (Ex. 2a, p. 4.10-10.)

average vehicle occupancy rate for carpooling purposes the average daily workforce for the power plant and transmission line would generate 315 daily vehicle trips over the area's roadways;

- the peak construction period is expected to take place between Month 11 and Month 17 of the approximately 24-month construction period;
- during SJVEC's peak construction period, excluding the construction of gas and water pipeline linear facilities, the average daily workforce would increase to 386 workers and generate 594 daily vehicle trips;
- the construction of linear facilities, including gas and water pipelines, would begin during the first year of construction and be completed over a 12-month period;
- the construction of the gas pipeline would require 111 workers, adding an additional 170 daily vehicle trips to area roadways;
- the water pipeline would have a workforce of 113 workers, generating an additional 175 daily vehicle trips. The identical carpooling assumption of 1.3 persons per vehicle was used to calculate the number of daily vehicle trips resulting from linear facility construction;
- the overall peak construction workforce, including associated linear facilities, would add an estimated 938 daily vehicle construction trips to area roadways. The addition of 938 daily vehicles trips would cause traffic increases in relation to existing traffic volumes on the area's roadways. However, the increases would be temporary and would not cause any roadway to exceed its capacity or decrease to an unacceptable Level of Service (LOS);
- the daily construction schedule would start at 7:00 a.m. and end at 3:30 p.m.; thereby, avoiding potential effects on traffic volumes during the peak hours;
- Applicant assumes that the majority of the workforce would originate from the cities of Fresno and Clovis in Fresno County and parts of Madera County. Staff concurs with this assumption;
- maximum daily truck traffic during linear facility construction would be seven trucks for the water and gas pipelines, and five for the transmission line;
- the SJVEC is expected to have 30 full-time employees, working various shifts over a 24-hour period. Maintenance technicians and administrative personnel would work from 8:00 a.m. to 5:00 p.m., which would require 27 employees traveling to and from the site during peak commuting hours. This would add an additional 54 daily vehicle trips being made during peak commute hours (assuming each worker drove to and from the site alone and was not involved in any type of car-pooling activity);

- the SJVEC would require up to five truck related deliveries per day during the operational phase. The trucks would deliver supplies and replacement parts, in addition to delivering and disposing of hazardous materials and waste; and
- hazardous materials including aqueous ammonia would be delivered to the project site. (Ex. 2a, p. 4.10-6/14.)

Staff concluded that:

- the SJVEC's construction workforce would have a less than significant impact on traffic volumes in the vicinity of the project;
- the SJVEC's construction would increase the amount of truck traffic in the area and cause additional wear on the area's roadways; however, the increase would be temporary and not significant;
- the SJVEC's truck traffic associated with operations would result in slight increases in truck traffic on roadways near the project site. However, these additions would not be substantial in relation to existing truck traffic patterns in the area; therefore, the impacts are expected to be less than significant;
- LOS decreases during SJVEC's construction would be within acceptable limits for LOS established by Caltrans and all relevant jurisdictions; therefore this decrease in LOS would not result in a significant impact to state highways in the vicinity of the SJVEC;
- the SJVEC's operations phase would have minimal affects on local roadways and the transportation network in the vicinity of the project site;
- **TRANS-3's** implementation that requires the project owner to follow all federal and state LORS for the handling and transportation of hazardous materials will mitigate any potential impacts;
- **TRANS-4's** implementation that requires a traffic control plan would ensure that the construction of linear facilities would not affect or contribute substantially to traffic increases in the vicinity of the SJVEC;
- **TRANS-5's** implementation would ensure that all construction and operational parking take place in designated parking areas only;
- the SJVEC would not affect parking capacities or result in inadequate parking in the vicinity of the project;
- **TRANS-7's** implementation would ensure that all construction related activities take place outside of the peak commute hours and that LOS levels will not deteriorate to an unacceptable level;

- the SJVEC would not conflict with applicable transportation plan policies; therefore, the effects to LOS in the project's vicinity are expected to be less than significant;
- the SJVEC's construction and operational phases would not result in inadequate emergency access to the proposed facility;
- the SJVEC's construction and operational phases would not cause any changes in air traffic patterns;
- the SJVEC's facility and related structures would not pose or result in any substantial safety risks to air traffic in the vicinity;
- the SJVEC has no design features, and there are no incompatible uses in the vicinity that would pose roadway or transportation safety hazards; and
- the SJVEC would cause no significant cumulative traffic and transportation impacts. (Ex. 2a, p. 4.10-6/14; 2/21 RT 205:7-9.)

FINDINGS AND CONCLUSIONS

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

1. The addition of traffic associated with construction or operation of the SJVEC project will not have a significant effect on existing levels of service at local intersections in the project vicinity.

2. Development and implementation of a construction traffic control and transportation demand implementation program will offset any temporary, short-term increases in congestion resulting from construction of the project and linear facilities.

3. The transportation of hazardous materials can be mitigated to insignificance by compliance with federal and state standards.

We therefore conclude that with implementation of the following Conditions of Certification, the project will not cause any significant adverse direct, indirect, or cumulative impacts to traffic and transportation, and will comply with all applicable laws, ordinances, regulations, and standards.

CONDITIONS OF CERTIFICATION

TRANS-1 The project owner shall comply with Caltrans, Fresno County, and the City of San Joaquin requirements for limitations on vehicle sizes and weights. 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 verification of any 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, Fresno County, and the City of San Joaquin and the affected municipalities' limitations for encroachment into public rights-of-way, and shall obtain necessary encroachment permits from all relevant jurisdictions.

Verification: In the Monthly Compliance Reports, the project owner shall submit copies of any encroachment 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-3 The project owner shall ensure that permits and/or licenses are secured from the appropriate federal and state agencies 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. The project owner shall maintain copies of these permits at the project site for inspection by the Compliance Project Manager (CPM).

TRANS-4 Prior to site mobilization activity for development of the SJVEC, the project owner shall consult with the City of San Joaquin and affected municipalities, and prepare and submit to the CPM for approval a construction traffic control plan and implementation program that addresses the following issues:

- Use of carpools, vanpooling or other ride share programs;
- Timing of heavy equipment and building materials deliveries;
- Lane closures during construction;

- Signing, lighting, and traffic control device placement if required;
- Establishing work hours outside of peak traffic periods;
- Insure that construction does not interfere with emergency access to the construction sites;
- Redirecting construction traffic with a flag person;
- Insure that adequate construction worker parking is provided on site;
- Maintaining access to adjacent residential and commercial properties;
- Maintaining utility services to adjacent residential and commercial properties.

Verification: At least 30 days prior to site mobilization activity, 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 Based on the determined state of primary roadways to be used in the traffic control plan and implementation program, and following construction of the power plant and all related facilities, the licensee shall repair those primary roadways to original or as near original condition as possible.

Verification: Thirty days prior to construction, the licensee shall photograph the primary roadways. The licensee shall provide the CPM and the City of San Joaquin and Fresno County with a copy of these photographs. Within 30 days of the completion of project construction, the licensee will meet with the CPM and the City of San Joaquin's Public Works Department to determine and receive approval for the actions necessary and scheduled to complete the repair of those roadways to original condition as possible.

TRANS-6 Designated truck routes shall be established to ensure that trucks do not go through residential areas, in front of schools, etc.

Verification: The project owner shall include this specific route in its contracts for truck deliveries and maintain copies onsite for inspection by the CPM.

TRANS-7 The project owner shall schedule construction work hours in potentially affected areas avoiding morning (7 a.m. to 9 a.m.) and evening (4 p.m. to 6 p.m.) peak hour traffic periods (includes heavy truck traffic).

Verification: The project owner shall maintain a construction log that specifies in the on-site compliance file, in part, the time and date of construction activities related to the gas pipeline, transmission line, and water interconnection line.

TRANS-8 During construction of the power plant and all related facilities, the project owner shall enforce a policy that all project-related parking occurs in designated parking areas.

Verification: At least 30 days prior to start of site mobilization activities, the project owner shall submit a parking and staging plan for all phases of project construction to the City of San Joaquin and the CPM for concurrent review and comment.

C. SOCIOECONOMICS

This section of the Decision addresses the potential direct and cumulative impacts of the proposed SJVEC project on local communities, community resources, and public services, such as schools, medical, and police services. It also considers the effect of project-related impacts on minority and low-income populations. Executive Order 12898, Federal Actions to address Environmental Justice in Minority Populations and Low-Income Populations, focuses federal attention on the environment and human health conditions of minority communities and calls on agencies to achieve environmental justice as part of this mission. The order requires the U.S. Environmental Protection Agency, all other federal agencies, and state agencies receiving federal funds to develop strategies to address this issue. The agencies are required to identify and address any disproportionately high and adverse impacts of their programs, policies, and activities on minority and/or low-income populations.

Summary of the Evidence

The SJVEC plant site is located in the City of San Joaquin (City), a farming community 30 miles west of the City of Fresno. The electrical transmission line, natural gas pipeline, and water supply pipeline corridors cross the unincorporated areas of Fresno County. (Exs. 2a, p. 4.8-2; 3N, p. 59.)

The City's population grew by 43 percent between 1990 and 2000. Most of this growth occurred before 1995 due to a large Community Development Block Grant the City received for the construction of low-income housing. At the same time Fresno County grew by 21 percent. According to the 2000 U.S. Census, Fresno County's population is 39.7 percent white and 60.3 percent minorities. Hispanics or Latinos comprise 44 percent of the population and 73 percent of all minorities. The City of San Joaquin's population consists of 96.5 percent minorities, of which 92 percent are Hispanics or Latino and 3.5 percent are Punjab Indians. About one-

quarter of the County's as well as San Joaquin's population was below-poverty level in 1990. Source: (Ex. 2a, pp. 4.8-2/3; *see below* **SOCIOECONOMICS TABLE 1**.)

SOCIOECONOMICS TABLE 1
Demographic Profile of the City of San Joaquin and Fresno County
1990 & 2000

	1990			2000		
Race/ethnicity	**City of San Joaquin**	**Fresno County**	**6-Mile Radius**	**City of San Joaquin**	**Fresno County**	**6-Mile Radius**
Total population	2,311	667,490	4,266	3,270	799,407	5,990[1]
White (excluding Hispanic)	593 (34.5%)	422,839	1,692[1]	116 (3.5%)	317,522	671[1]
Minority	1,718	244,651	2,574[1]	3,154	481,885	5,319[1]
% Poverty status persons	36%	21.4%	25.4%[2]	Not Available	Not Available	Not Available

Sources: Dept. of Finance Demographic Unit, 2001; 1990 & 2000 Census
[1] U.S. Census Block data.
[3] U.S. Census tracts

Source: (Ex. 2a, p. 4.8-3.)

A. Construction Impacts

The parties testified that SJVEC's:

- initial capital cost for construction is estimated at $600 million;
- actual construction will take place over approximately 24 months;
- purchases locally during construction would be between $5 and $10 million of materials and supplies;
- construction personnel will peak at 385 during month 15 of construction;
- available skilled labor workforce in the City of San Joaquin and Fresno County would be adequate to fulfill labor requirements for construction;
- construction workforce will be drawn primarily from the local area and/or will commute daily from within Fresno County to reach the job site;
- construction payroll would provide about $60.9 million, at an average salary of $50 per hour (including benefits). Of the $60.9 million in construction payroll, 60 percent, or $36.6 million, is assumed to stay in the local area over the approximate two-year construction period;

- construction activity, beyond direct impacts, will result in beneficial secondary economic impacts (indirect and induced impacts) within Fresno County;
- estimated indirect and induced impacts result from $5 million in annual local construction expenditures, as well as $12.8 million (disposable portion of the $18.3 million in annual spending–here assumed to be 70 percent) in spending by local construction workers;
- construction will generate between $381,000 to $763,000 in local sales taxes;
- construction will not create any significant adverse impacts to the local school system since there likely will be no new students entering the local school districts;
- construction will require minimal consumption of utilities and public services support. This includes water, sewer, natural gas, and health services;[66]
- law enforcement services would be provided by the Fresno County Sheriff's Department, which will provide adequate police protection services during the project's construction and operation; and
- construction will not cause significant demands on public services or facilities. (Exs. 2a, p. 4.8-7/19; 3N, p. 60.)

B. Operation Impacts

The parties testified that SJVEC's operation would generate:

- an annual payroll of about $1.71 million by employing 30 full-time employees at an average annual salary of $57,000;
- an annual operations budget of $8 million, most of which will go into the Fresno County economy;
- an annual maintenance budget of $9.5 million, most of which will go into the Fresno County economy;

[66] In the event health services are required, minor injuries could be treated at the Valley Team Health Clinic in San Joaquin. Workers who are more seriously injured could be transported to Fresno by ambulance or airlifted by Life-Flight services available from the University Medical Center in Fresno, which also has an adult trauma center. As of March 2003, when an ambulance garage, paramedic services, and a helicopter landing pad would be available at the Valley Health Team clinic, response time for emergency paramedics and ambulance service would be 5-10 minutes. Life-Flight's response time is 20-30 minutes. All emergency, ambulance and Life-Flight services will be provided by American Ambulance. Source: (Ex. 2a, p. 4.8-19.)

- beneficial secondary economic impacts (indirect and induced impacts) that would occur permanently within Fresno County that result from annual expenditures on payroll as well as those on operations and maintenance (O&M). Estimated direct and induced employment within Fresno County was estimated at 108 and 49 jobs, respectively. Indirect and induced income impacts were estimated at $3,896,500 and $1,223,700, respectively. The associated employment and income multipliers for the project were estimated at 6.2 and 1.3, respectively;
- approximately $19,482 in one time school impact fees to the Golden Plains Unified School District;
- approximately $6 to $7.8 million annual property taxes to Fresno County;
- no significant exposure of local minority and low-income populations to disproportionately high and adverse impacts;
- no significant negative cumulative impacts; and
- no significant impacts on public services or facilities. (Exs. 2a, p. 4.8-14/20; 3N, pp.60-61.)

FINDINGS AND CONCLUSIONS

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

1. The SJVEC will draw primarily upon the local labor force from the City of San Joaquin and the Fresno County area for construction and operation workers. Therefore, the project will not cause an influx of a significant number of construction or operation workers into the local area.

2. SJVEC's initial capital cost is estimated at $600 million.

3. The SJVEC's estimated value of materials and supplies that will be purchased locally during construction is between $5 and $10 million.

4. The SJVEC's construction will generate total local sales taxes of approximately $381,000 to $763,000.

5. The SJVEC will provide about $60.9 million in construction payroll, at an average salary of $50 per hour (including benefits). Of the $60.9 million in construction payroll, 60 percent, or $36.6 million, is assumed to stay in the local area over the approximate two-year construction period.

6. SJVEC's construction activity will result in secondary beneficial economic impacts (indirect and induced impacts) within Fresno County in addition to the projects direct impacts. The estimated indirect and induced impacts result from the $5 million in annual local construction expenditures as well as the $12.8 million (disposable portion of the $18.3 million in annual spending–here assumed to be 70 percent) in spending by local construction workers.

7. The proposed project is not likely to have a significant adverse effect on traditional socioeconomic considerations including employment, housing, schools, medical resources, tax revenues, and fire and police protection.

8. The project will likely result in increased revenue from sales taxes due to construction activities.

9. The project owner will recruit employees and purchase materials within the Fresno area to the greatest extent possible.

10. SJVEC's operation will generate direct, indirect, and induced benefits to the Fresno County region including, but not limited to, tax, school, and payroll expenditures.

11. The project will not have any disproportionately high and adverse impacts on any minority and low-income populations.

12. SJVEC's construction and operation will produce no significant negative cumulative impacts.

13. SJVEC's operation will result in no significant impacts on public services or facilities in Fresno County.

We conclude that implementation of the Conditions of Certification will ensure that project-related construction and operation activities will not impose any significant adverse socioeconomic impacts on the region's economy. Furthermore, implementation of the following Conditions of Certification will ensure that the project will conform to all applicable LORS relating to socioeconomic factors. In summary, the SJVEC will not result in any significant direct, indirect, or cumulative adverse socioeconomic impacts.

CONDITIONS OF CERTIFICATION

SOCIO-1 The project owner and its contractors and subcontractors shall recruit employees and procure materials and supplies by priority within (1) the City of San Joaquin, and (2) Fresno County, unless:

- to do so will violate federal and/or state statutes;
- the materials and/or supplies are not available;
- qualified employees for specific jobs or positions are not available; or
- there is a reasonable basis to hire someone for a specific position from outside the local area.

Verification: At least 60 days prior to site mobilization, the project owner shall submit to the Compliance Project Manager (CPM) copies of contractor, subcontractor, and vendor solicitations and guidelines stating hiring and procurement requirements and procedures.

SOCIO-2 The project owner shall pay the one-time statutory school facility development fee as required at the time of filing for the in-lieu building permit with the City of San Joaquin Building Inspection/Code Enforcement Department.

Verification: The project owner shall provide proof of payment of the statutory development fee in the next Monthly Compliance Report following the payment.

D. NOISE

The construction and operation of any power plant creates noise, or unwanted sound. The character and loudness of this sound and the proximity of the facility to sensitive receptors combine to determine whether a project's noise will cause significant adverse impacts to the environment. In the licensing process, the Energy Commission evaluates those impacts and determines 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 SJVEC's likely noise impacts and the sufficiency of measures proposed to control them.

Summary and Discussion of the Evidence

A. Background Information and Statement of the Issues

The Energy Commission's power plant certification regulations require that noise measurements be made at noise-sensitive locations where there is a potential for an increase of 5 dBA or more over existing background noise levels during operation of a power plant. The parties identified the following locations within this noise contour:

- Six to eight residences within 3,000 feet of the project site boundary that are located in unincorporated Fresno County, and[67]
- One residence within the city limits of the City of San Joaquin (San Joaquin). (Exs. 1, Vol. 1, p. 8.5-15; 2a, p. 4.6-4/5; 4B, p. 45; *see below* **Figure 1**.)

Having identified the foregoing locations, the parties disagree regarding application of a condition regarding the appropriate noise restrictions to apply. We note that the

[67] The Noise Element of the Fresno County General Plan indicates that day-night average (DNL) noise levels that are 60 dB or less are "normally acceptable." Since power plants generally operate 24 hours/day and generally emit constant levels of noise, a 60 dB DNL criterion would be approximately equivalent to an hourly average (L_{eq}) noise level of 54 dB. The Fresno County Noise Ordinance specifies maximum allowable noise exposure based on the minutes of operation during an hour of the noise source. For power plants that operate constantly, the applicable criterion would be the allowable noise level that occurs 30 minutes or more during an hour. For residences, the allowable exterior noise levels would be 50 dBA from 7 a.m. to 10 p.m. and 45 dBA from 10 p.m. to 7 a.m. (Ex. 2a, p. 4.6-3.)

parties do not dispute the raw data drawn from Applicant's noise surveys. Staff notes that the identical data informs both opinions, but the data is used quite differently by each party. (Staff Opening Brief, p. 2.)

On the one hand, Staff strongly proposes that we apply the L_{90} metric. Staff describes it as the most appropriate metric for measuring the existing background noise levels. According to Staff, the L_{90} metric best captures the sound that is always present and is best used to compare and contrast against the noise from a power plant, which is also constant. Staff's expert witness testified that under some circumstances there can be "quite a difference" between the L_{90} metric and the L_{eq} or L_{dn} metrics, which Applicant strongly proposes that we apply.[68] (2/20 RT 130:13-137:14; Staff Opening Brief, p. 2; Reply Brief, p 5; *see* **NOISE Tables 2 & 3**.)

On the other hand, Applicant contends that the Day-Night Average Sound Level (DNL or Ldn) is the most appropriate metric for the CEC to use as the primary noise evaluation benchmark.[69] (2/20 RT 20:20-25:1; 28:24-38-13; 46:7-47:15; Ex. 4B, pp. 55- 56.)

For example, Applicant's noise expert testified as follows:

> And this project will not generate noise levels at the nearest sensitive receptors that would exceed a 55 decibel day/night level, day/night average level, the LDN. And that happens to be the descriptor that the USEPA used to determine that the 55 dba LDN was, quote, "the level of environmental noise requisite to protect the public health with an adequate margin of safety" close quote. So in that respect this plant will not have an adverse effect on health. (2/20 RT 22:8-17)

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[68] Staff argues that the L_{eq} or L_{dn} metric is an average of the energy levels of sound and tends to overstate the noise level when intermittent noise sources (i.e., traffic, trains) occur in a setting with a very low background noise level. The steady state noise from a power plant will be most noticeable during the quietest times of the night, when the intermittent contributors to the background noise are at their lowest activity levels. During the early morning hours after most of the populace has retired for the evening and before they resume their commuting activities in the morning, the SJVEC would have greatest potential to disturb people. . (Staff Opening Brief, p. 2; Reply Brief, p. 5.)

[69] Ldn is the energy-average of 24 hourly Leq,h values, where noise occurring during the nighttime (10:00 p.m. to 7:00 a.m.) is penalized by addition of 10 decibels. (Ex. 4B, pp. 55-56; *see* Table 3.)

At another point Applicant's noise expert testified that:

> Percentiles or statistical numbers, the L50, L10, L90s, again will give you a different number for the very same noise. And that's something to consider that it's not the noise that's changing, it's the way we're looking at it, the way we're describing it, with a different descriptor. And that does, in fact, cause us some concern with the methodology used by the staff to assess some of the increases, for example, in noise level. That particular descriptors are used, and that does have an effect. What has, you know, more of an effect is not looking at the ambient noise level as CEQA requires you to look at, but looking at background, which is a part of the ambient. And it's sometimes represented by a descriptor that's called the 90th centile, L90. You know, it's that level exceeded 90 percent of the time. So it's looking at the transition between the really quietest 10 percent and the other 90 percent of noise levels. And that point is going to be at a different place in the decibel scale for the same noise. In fact, we have already touched on that in the staff assessment, in the final analysis. There is some confusion between using ambient noise, background noise and some other background ambient noise. CEQA's pretty clear about ambient. Just defined as all the noise, all encompassing. The use of the descriptor to describe background can mischaracterize the existing level and also skew the effect or by how much noise might increase. We already talked about the effect that there may be some changes in noise level and the plant will be audible. But, it's asserted in the staff assessments that the background noise level will be noticed, and because of that it may cause a significant impact because the facility, the plant now would be the new background noise. The staff didn't offer any scientific factual data to support that theory, that changes in this background level would cause adverse effects and result in significant noise impact. In my 28 years experience in looking at a lot of this, and also an extensive literature search that we completed for this project, we found that the scientific data really points to what's called the overall acoustic energy of an intruding noise as the most important factor for assessing adverse effects, including annoyance. (2/20 RT 30:10-32:12.)

The differences between the two metrics may best be observed by Staff's summary of background L_{90} and L_{eq} noise levels, and the DNL values calculated from reported hourly L_{eq} values. The L_{90} and L_{eq} values are the arithmetic means (averages) of the four quietest nighttime or daytime hours. Staff contends the data shows that background noise levels in terms of the L_{90} descriptor as measured in late December and January can be characterized as extremely quiet at the rural residences in

unincorporated Fresno County. The background noise levels at the site within the City (G2) are typical of residential urban areas in small communities. (Exs 2a, p. 4.6-6; *see below* **Noise Table 1**; *cf.* 2/20 RT 48:6-81:10; Exs. 2H; 2S-T; 4B, pp. 45-48; Tables 2, 3 5 & 8.)

Noise Table 1
Background Noise Measurement Summary

Site/Day	Mean L_{90}	Mean L_{eq}	DNL
G1/Day 1	29	34	45
G1/Day 2	28	41	--
G2/Day 1	43	46	62
G2/Day 2	46	48	--
G3/Day 1	26	46	54
G3/Day 2	27	42	--
G4/Day 1	31	45	57
G4/Day 2	28	40	--
G5/Day 1	36	64	68
G5/Day 2	30	49	--

Source: (Ex. 2a, p. 4.6-6.)

To mitigate SJVEC's noise impacts based upon the L_{90} metric, Staff recommends that we impose the following noise restriction in our Conditions of Certification:

> **STAFF RECOMMENDED NOISE-6** The project design and implementation shall include appropriate noise mitigation measures adequate to ensure that noise due to operation of the project will not exceed the values shown below:

Site	Noise Level, dBA
1&2	38 or Less
G2	47 or Less
5,6&7	36 or Less
9	38 or Less
10	40 or Less

> 1. No new pure-tone components may be introduced. No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints. Steam relief valves shall be adequately muffled to preclude noise that draws legitimate complaints.
>
> 2. Within 30 days of the project achieving a sustained output of 80 percent or greater of rated generating capacity, the project owner shall conduct short-term survey noise measurements at monitoring sites 1, 3, 5, 9 and 10. The short-term noise measurements shall be conducted

during both daytime (7 a.m. to 10 p.m.) and nighttime (10 p.m. to 7 a.m.) periods. In addition, the applicant shall conduct a 25-hour community noise survey at monitoring site 5. The survey during power plant operations shall also include measurement of one-third octave band sound pressure levels at each of the above locations to ensure that no new pure-tone noise components have been introduced.

3. If the results from the pre-construction and operational noise surveys indicate that the noise level (L90) due to power plant noise exceeds the noise limits shown above mitigation measures shall be implemented to reduce noise to a level of compliance with these limits.

4. If the results from the pre-construction and operational noise surveys indicate that pure-tones are present, mitigation measures shall be implemented to eliminate the pure-tones. (Ex. 2a, p. 4.6-17/18.)

Staff opines that it does not know whether it will be feasible for the SJVEC to achieve the plant operational noise levels shown in our **NOISE Table 5** below, and which are set as project conditions in Staff's recommended **NOISE-6**. According to Staff, to determine feasibility, it will be necessary for Applicant to provide:

- Identification of the significant noise sources in terms of the noise level contribution from each source as received at one or more critical sensitive receptors;
- Specifics on the mitigation measures that could be applied to reduce project noise to a level of no significant adverse impact (i.e., no more than a 5 dBA increase);
- The estimated noise level reductions achieved by these mitigation measures for the significant noise sources identified above;
- Cost estimates for these mitigation measures;
- A statement whether it is feasible (in Applicant's opinion) to mitigate to a level of insignificance; and if not, and
- The minimum level of increase in post-project noise levels that the applicant deems feasible. (Exs. 2a, p. 4.6-12/13; 2 O, pp. 18/19.)

On the other hand, to mitigate SJVEC's noise impacts based upon the L_{eq} or L_{dn} metric, Applicant recommends that we impose the following noise restriction in our Conditions of Certification:

APPLICANT RECOMMEDED NOISE-6 The project design and implementation shall include appropriate noise control measures adequate to ensure that noise due to operation of the project will not

exceed an hourly average exterior noise level of more than 49 dBA L_{eq} [70]measured at any existing residence:

1. Identical to Staff's version above.
2. Identical to Staff's version above except:
   - add "short term" before measurement in the last sentence; and
   - add a new last sentence as follows:

   "The measurement of power plant noise for the purposes of demonstrating compliance with this Condition of Certification may alternatively be made at a location, acceptable to the CPM, closer to the plant (e.g., 400 feet from the plant boundary) and this measured level then mathematically extrapolated to determine the plant noise contribution at the nearest residence. However, notwithstanding the use of this alternative method for determining the noise level, the character of the plant noise shall be evaluated at the nearest residence to determine the presence of pure tone of other dominant sources of plant noise."
3. Identical to Staff's version, except in the second line:
   - Strike the references (L90);
   - Delete the second "noise" [after power plant], and insert "operations";
   - In the third line, after mitigation, add a comma; and
   - In the fourth line, substitute "this limit" for "these limits".
4. Identical to Staff's version above. (Ex. 4B, pp. 44-45 & 80-81.)

Moreover, Applicant argues that the total estimated capital cost of the improvements to the SJVEC facility to comport with Staff's recommended **NOISE-6** would be $55 million. Applicant argues that this amount is not economically feasible under CEQA. (Ex. 4B, pp. 72-75.)

[70] We note that Applicant's proposed condition contained the 49 dBA L_{90} metric but we assume this to be a typographical error in light of Applicant's forceful arguments in favor of the L_{eq} metric. For purpose of our LORS analysis, we note in addition that Applicant would, as the only change to the parties Verification to **NOISE-6,** strike from the following language the reference to "Fresno County": Within 15 days after completing the post-construction survey, the project owner shall submit a summary report of the survey to the City of San Joaquin, Fresno County, and to the CPM. (Ex. 4B, p. pp. 44-45, 77)

NOISE FIGURE 1
WEIGHTED SOUND LEVEL CONTOURS

Source: (Ex. 1, Vol. 1, p. 8.5-15.)

Noise levels can be measured in a number of ways as demonstrated below in **Table 2.**

NOISE Table 2
Definition of Some Technical Terms Related to Noise

Terms	Definitions
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure.
A-Weighted Sound Level, dB	The sound pressure level in decibels as measured on a Sound Level Meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this testimony are A-weighted.
L_{10}, L_{50}, & L_{90}	The A-weighted noise levels that are exceeded 10%, 50%, and 90% of the time, respectively, during the measurement period. L_{90} is generally taken as the background noise level.
Equivalent Noise Level, L_{eq}	The energy average A-weighted noise level during the Noise Level measurement period.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 4.77 decibels to levels in the evening from 7 p.m. to 10 p.m. and after addition of 10 decibels to sound levels in the night between 10 p.m. and 7 a.m.
Day-Night Average Sound Level, DNL or L_{dn}	The Average A-Weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10 p.m. and 7 a.m.
Ambient Noise Level	The composite of noise from all sources, near and far. The normal or existing level of environmental noise at a given location.
Intrusive Noise	That noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.
Source: California Department of Health Services 1976.	

Source: (Ex. 2a, p. 4.6-22.)

Table 3 below illustrates common noises and their associated dBA levels.

NOISE Table 3
Typical Environmental and Industry Sound Levels

Source and Given Distance from that Source	A-Weighted Sound Level in Decibels (dBA)	Comparable Environmental Noise	Subjectivity/ Impression
Civil Defense Siren (100')	140-130		Pain Threshold
Jet Takeoff (200')	120		
Very Loud Music	110	Rock Music Concert	Very Loud
Pile Driver (50')	100		Very Loud
Ambulance Siren (100')	90	Boiler Room	Very Loud
Freight Cars (50')	85		
Pneumatic Drill (50')	80	Printing Press Kitchen with Garbage Disposal Running	Loud
Freeway (100')	70		Moderately Loud
Vacuum Cleaner (100')	60	Data Processing Center Department Store/Office	
Light Traffic (100')	50	Private Business Office	Quiet
Large Transformer (200')	40		
Soft Whisper (5')	30	Quiet Bedroom	
	20	Recording Studio	
	10		Threshold of Hearing
Source: Peterson and Gross 1974			

Source: (Ex. 2a, p. 4.6-22.)

With regard to increases in A-weighted noise levels:

- Except under special conditions, a change in sound level of one dB cannot be perceived.
- Outside of the laboratory, a 3-dB change is considered a barely noticeable difference.
- A change in level of at least five dB is required before any noticeable change in community response would be expected.
- A 10-dB change is subjectively heard as an approximate doubling in loudness and almost always causes an adverse community response. (Ex. 2a, p. 4.6-23.)

Staff considers a 5 dBA increase in background levels to be worthy of further investigation and an increase of greater than 10 dBA to be a clearly "substantial" change and therefore significant under Appendix G of the CEQA Guidelines.[71] (Staff Opening Brief, p. 3.)

The adverse effects of noise on people can be classified into three general categories:

- Subjective effects of annoyance, nuisance, dissatisfaction;
- Interference with activities such as speech, sleep, and learning; and
- Physiological effects such as anxiety or hearing loss.

The sound levels associated with environmental noise, in almost every case, produce effects only in the first two categories. Workers in industrial plants can experience noise effects in the last category. There is no completely satisfactory way to measure the subjective effects of noise, or of the corresponding reactions of annoyance and dissatisfaction, primarily because of the wide variation in individual tolerance of noise. One way to determine a person's subjective reaction to a new noise is to compare the level of the existing (background) noise, to which one has become accustomed, with the level of the new noise. In general, the more the level or the tonal variations of a new noise exceed the previously existing ambient noise level or tonal quality, the less acceptable the new noise will be, as judged by the exposed individual. (Ex. 2a, p. 4.6-22/23.)

[71] Staff states that it refers to Appendix G for guidance and here considered whether the project would result in a "substantial permanent increase in ambient noise levels in the project vicinity" or a "substantial temporary or periodic increase in ambient noise levels in the project vicinity." (Ex. 2a, p. 4.6-2; Staff Opening Brief, p. 3, n. 3, citing 14 CCR § 15000 et seq., App. G.)

B. Applicant

Applicant's witnesses testified that the SJVEC would be located on a site zoned for manufacturing. Noise-sensitive land uses closest to the site are primarily isolated residential buildings located in farmlands surrounding the site. The closest sensitive receptor is located approximately 1,500 feet east of the project's property line at the northeast corner of Yuba Avenue and Springfield Avenue. (Ex. 4B, p. 45; Applicant Opening Brief, p. 23.)

Applicant contends that the SJVEC project would employ a considerable number of design features and noise attenuation measures sufficient to limit the noise level resulting from plant operations to not more than **49 dBA Leq** at any existing residence. (Ex. 4B, pp.51-59 & Tables 6-8.)

Applicant's design features and attenuation measures in for the SJVEC include the following:

- Noisy fuel gas compressors would be installed inside a noise attenuating building at a cost of approximately $1,300,000;
- The combustion turbines and generators will be designed to limit near-field noise levels to 90 dBA at 3 feet;
- Specific noise attenuation measures will include acoustical enclosures for the turbines, generators, and mechanical and electrical equipment packages, and inlet air silencers;
- The steam turbine and generator will be designed to limit near field noise levels to 90 dBA at 3 feet. To accomplish this, a very large noise enclosure, installed on the steam turbine pedestal, will enclose all four sections of the steam turbine (HP, IP, and two LP sections) and the generator. The installed cost of this noise enclosure is estimated to be about $300,000;
- The noise generating equipment associated with the brine concentrators, including the vapor compressors and recirculation pumps of similar equipment), will be located inside the water treatment building in order to reduce noise. Typically, this equipment would be located outdoors to improve access for maintenance. The added cost to locate this equipment indoors is estimated at $520,000; (4,000 sf @ $130/sf, including an overhead crane);

- The cooling tower has been located at the north-east edge of the project site, maximizing its distance from the majority of the closest noise-sensitive receptors;
- Silencers will be provided on steam system vent stacks to reduce noise levels;
- High-noise piping, such as that contained on the HRSG duct burner skids and in the vicinity of high pressure-drop control valves will be acoustically lagged in order to reduce noise levels;
- Plant/instrument air compressors will be located inside the water treatment building to reduce noise levels. The added cost to locate this equipment indoors is estimated at $60,000 (600 sf @ $100/sf); and
- Major plant components located outdoors will be specified to limit near field maximum noise levels to less than 90 dBA at 3 feet (or 85 dBA at 3 feet where available as a vendor standard). (2/20 RT 12:20-17:11; 81:11-83:2; Ex. 4B, p. 48-50 & Att. A-E, which show pictures of Applicant's proposed housing structures; Applicant Opening Brief, pp. 23-27.)

In addition to the plant design measures described above, Applicant has offered to provide additional sound attenuation for the ten isolated residences nearest to the SJVEC. Applicant circulated letters to each of these property owners formally offering a sound attenuation program. Staff has received letters from seven of the eight property owners (two of the owners own multiple residences) accepting SJVEC's offer and discussions continue with the eighth property owner. The sound attenuation program will provide upgrades to the homes designed to reduce interior noise levels. These upgrades include some or all of the following:

- Replacement of single-pane windows with dual-pane windows;
- Replacement of hollow-core exterior doors with solid-core doors;
- Air conditioning; and
- Additional sound insulation in exterior walls. (Exs. 4B, pp. 49-50; 4B2-4B9.)

In addition, Applicant presented a Noise Feasibility Survey that it commissioned to respond to Staff's concerns about the suitability of the foregoing measures. According to Applicant, the survey determined that:

- it would be feasible, suitable, and effective to provide any or all of the noise insulation upgrades at each of the potentially affected dwellings;

- local noise barriers would also be feasible for those locations where a beneficial interior noise reduction would result;
- attenuation of exterior noise with windows closed would provide nearby residences with at least a 20-decibel reduction of exterior noise;
- A worst-case exterior project noise level of 50 dBA Leq would result in an interior sound environment of 30 dBA. This is a very quiet sound level that clearly would not result in noise impact;
- Local noise barriers would also be feasible for those locations where a beneficial *exterior* noise reduction would result. These barriers would be relatively small and would be yard, patio, deck, or BBQ area; and
- The sound insulation upgrades would also attenuate any other ambient noise affecting the upgraded residences. (2/20 RT 25:2-143:22; Ex. 4B, pp. 50, 75-77 & Atts. F-G.)

1. LORS

a. Federal

Applicant notes that the Staff Assessment correctly identifies the Occupational Safety and Health Act of 1970, and its implementing regulations as applicable to the SJVEC, and that appropriate conditions with ensure compliance. In addition, Applicant's testimony was that the SJVEC will generate no vibration levels, either during the construction phase or operations phase that would migrate offsite to create any adverse impacts.[72] (2/20 RT 18:10-17; Applicant Opening Brief, p. 27; *see* **NOISE-3**.)

b. Local LORS

Applicant testified that the Staff Assessment cites three local LORS, as follows.

- the Noise Element of the City of San Joaquin General Plan;
- City of San Joaquin Municipal Code sections 8.24.050 and 8.24.060; and

[72] Both Applicant and Staff concur that the SJVEC will not generate excessive ground-borne vibration or ground-borne noise levels. (Exs. 2a, p. 4.6-7; 4B, p. 55.)

- the Noise Element of the Fresno County General Plan. (2/20 RT 17:12-18:1; Ex. 4B, pp. 53-55; Applicant Opening Brief, pp. 27-30.)

Applicant agrees with Staff that San Joaquin's Noise Element is applicable to the SJVEC, but disputes Staff's assertion, set forth below, that the Noise Element "establishes land use-based allowable noise levels."

> The Noise Element of the City of San Joaquin General Plan establishes land use-based allowable noise levels. For low-density housing, a noise level of 50 dBA or less is satisfactory during any time of the day or night. For multi-family residential uses, a noise level of 55 dBA or less is satisfactory from 7 a.m. to 10 p.m.; for the hours of 10 p.m. to 7 a.m., the recommended noise level is 50 dBA or less. (Ex. 2a, p. 4.6-3.)

Applicant suggests that instead of adopting "allowable" noise levels for new projects, San Joaquin's Noise Element:

- Requires an acoustical analysis early in the review process when a development of a long term project may result in neighboring or adjoining land uses being exposed to existing or future noise levels that exceed the levels specified in Table 11--Recommended Ambient Allowable Noise Level Objectives--of San Joaquin's General Plan;
- Does not require that the project be limited to a specific noise level;
- Does not restrict new sources of noise in areas where existing noise levels exceed the Table 11 objectives. (Ex. 4B, p. 53; Applicant Opening Brief, pp. 28-29.)

Instead, Applicant argues that the Noise Element requires that the City not allow new "noise sensitive land uses in areas where existing noise levels exceed the levels specified in Table 11. Thus, Applicant asserts that:

- the SJVEC has satisfied San Joaquin Noise Element's only mandatory requirement because Applicant provided an acoustical analysis early in the review process;
- the SJVEC is in general conformity with the Noise Element's ambient noise level objectives;
- the SJVEC is not a noise-sensitive land use, and it would be located in areas that already exceed the 50 dBA on a DNL, and 24-hour L_{eq} basis. (Exs. 1, Vol. 1, § 8.5; 4B, p. 53.)

We note the apparent paradox in Applicant's position in view of its testimony at the hearing that the SJVEC in its design incorporated the City's Noise Element objective of 50 decibels, and in fact will be able to get below that goal with the machinery controls employed at the site. (2/20 RT 26:22-27:4.)

With respect to San Joaquin Municipal Code sections 8.24.050 and 8.24.060, Applicant offered evidence to demonstrate that the City's position is that these ordinances should be characterized as "a nuisance abatement" tool designed "to respond to incidents of unusual, unreasonably loud noise." As such, the City's position is that the ordinances were not adopted to be used to prohibit the construction or operation of industrial or manufacturing facilities in appropriately zoned districts. (Exs. 4B, p. 54; 4B1; Applicant Opening Brief, pp. 29-30.)

Third, with respect to the Fresno County General Plan Noise Element, Applicant contends that because the SJVEC is located wholly within the jurisdiction of San Joaquin, Fresno County does not have jurisdiction. Applicant contends that Fresno County concurs that the County ordinance is not applicable as a noise LORS for the SJVEC project. (2/20 RT 17:23-18:1; Exs. 4B, p. 54; 4B.9; Applicant Opening Brief, p. 30.)

Apparently, Applicant's contention about Fresno County's position is based upon a letter from Fresno County's Adult Services Department to CEC staff dated August 19, 2002, which provides that:

> The Noise section of the Executive Summary states, *"Staff and the Applicant were unable to reach agreement on the significance criteria for noise impacts, nor the suitable mitigation for addressing those impacts."* **This Department concurs with the Staff Assessment of the potential noise impacts to nearby noise sensitive receivers, both in the unincorporated area of Fresno County and the City of San Joaquin, including the recommended mitigation measures which should ensure compliance with the applicable city and county noise ordinances.**
>
> As a point of clarification, the location of the noise source determines the regulatory jurisdiction. If noise-related complaints are generated by the project, those complaints will be directed to the City of San Joaquin for

appropriate follow-up and enforcement, regardless of the location of the noise sensitive receiver (Ex. 4B, p. 4B.9, italics in original; emp. provided.)

c. CEQA

With respect to CEQA, Applicant contends that the SJVEC will not create a significant adverse impact under CEQA. (Applicant Opening Brief, pp. 31-42.)

C. Staff

Staff acknowledged that Applicant performed acoustical calculations to determine the SJVEC's noise emissions, and to develop noise mitigation measures. Staff concluded that Applicant's calculations were based on typical manufacturer noise data for the major equipment planned for the SJVEC facility, and that specific noise mitigation design measures included such measures as:

- Combustion turbines enclosed in an acoustical enclosure designed to limit near field noise levels to 85 dBA at 3 feet;
- Noise enclosure on the steam turbine generator;
- Silencers on relief valve stacks;
- Design of major components to limit near field maximum noise levels to less than 90 dBA at 3 feet (or 85 dBA where available as a vendor standard);
- Location of power block on the project site to maximize distance to nearest residential areas; and
- Temporary silencers to be used during steam blow operation to quiet the steam blow noise to no greater than 100 dBA measured at a distance of 100 feet. (Ex. 2a, p. 4.6-9.)

Staff in the FSA also concluded that:

- The City does not have any noise limits for construction;
- Due to its intermittent nature, construction noise is best compared to the existing average (L_{eq}) noise level;
- Noise levels due to construction activities are predicted to range from 48-59 dBA at the nearest receiver;

- Noise levels from 48-59 dBA at the nearest receiver would be within the range of existing ambient noise levels at the receptors;
- As a result, construction noise would be considered less than significant with implementation of the measures described in proposed **Conditions NOISE-1-3**, and **NOISE-8** to further reduce any potential for noise impacts to the local community associated with construction activities;
- It is not expected that pile driving, if it occurs, will produce any significant vibration at the nearest receptors;
- Noise impacts from steam blows should not occur with implementation of Conditions **NOISE-4** and **NOISE-5**;
- Construction of new gas and water lines would move continuously, impacting particular receptors for only a few days. This construction work will be performed only during daytime hours, and no significant adverse impacts are expected to occur upon implementation of Conditions **NOISE-1, NOISE-2 and NOISE-3**;
- The electrical output of the plant would be connected to the existing 230 kV transmission line about 1,500 feet south of the project site;
- Noise from the transmission lines includes a corona discharge hum, which is expected to be audible within 100 feet of the power lines;
- The nearest residences are located more than 100 feet from the transmission lines;
- The proposed 230 kV switchyard would be located on the project site, and would be at least 2,000 feet from the nearest residence;
- As a result of the large setbacks of the linear facilities from residences, no noise impacts will occur from the transmission facilities; and
- The water and natural gas pipelines would be inaudible during operation. (Ex. 2a, p. 4.6-7/8 & 14.)

We accept these findings.

Staff presented evidence that lists the predicted project noise levels at the nearest receptors in terms of background noise levels (L_{90}). The predicted noise levels include certain of Applicant's proposed mitigation at the plant site (exclusive of the noise attenuation program proposed for nearby residences). This evidence is presented below in **Table 4**.

NOISE Table 4
Summary of Predicted Plant Operational Noise Levels

Receptor Sites	Noise Level, dBA			
	4-Hour Background Noise Level	Plant	Cumulative	Change
1 & 2	28-29	45	45	+16 to +17
G2	43-46	49	50 to 51	+5 to +7
5,6 &7	26-27	48	48	+21 to +22
9	28-31	48	48	+17 to +20
10	30-36	46	46	+10 to +16

Source: (Ex. 2a, p. 4.6-9.)

To avoid allowing a level of plant noise that would cause a significant impact, Staff's recommended **NOISE-6** would require that noise levels produced by SJVEC's operation not exceed the limits shown below in **Table 5**.[73] (Exs. 2a, p. 4.6-11; 4B, pp. 45-48; Staff Opening Brief, pp. 2-3.)

NOISE Table 5
Conditioned Plant Operational Noise Levels and Resulting Ambient Noise Levels

Site	Noise Level, dBA			
	4-Hour Background Noise Level	Plant Noise Level, As Conditioned[1]	Cumulative	Resulting Increase in Ambient Noise Levels
1&2	28-29	38 or Less	38	+10
G2	43-46	47 or Less	49	+5
5,6&7	26-27	36 or Less	36	+10
9	28-31	38 or Less	38	+10
10	30-36	40 or Less	40	+10
[1]See Recommended Condition of Certification **NOISE-6**				

Source: (Ex. 2a, p. 4.6-11; 17-18.)[74]

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[73] Staff notes that noise due to construction activities is usually considered to be insignificant in terms of CEQA compliance if (1) the construction activity is temporary; (2) use of heavy equipment and noisy activities is limited to daytime hours; and (3) all feasible noise abatement measures are implemented for noise-producing equipment. We believe that our Decision comports with these measures. (Exs. 2a, p. 4.6-3, 7-8; 4B, pp. 77-78; *see* **NOISE Conditions 1-3 & 8**.)

[74] According to Staff, **Table 5** shows that if operational plant noise levels are reduced to the values shown in the third column, the resulting background noise levels shown in column five would be increased by no more than 10 dBA, except at Site G2 which would increase by no more than 5 dBA. At Site G2, it is necessary to limit the increase in background noise levels to no more than 5 dBA to satisfy the City of San Joaquin's noise ordinance. At the remaining sites, which are in unincorporated

1. LORS

a. Federal

Staff presented the applicable federal LORS that are designed to protect workers against the effects of occupational noise exposure.[75] OSHA lists permissible noise level exposure as a function of the amount of time during which the worker is exposed. (Ex. 2a, p. 4.6-1; *see* below, **Noise: Table 6**.)

NOISE Table 6
OSHA Worker Noise Exposure Standards

Duration of Noise (Hrs/day)	A-Weighted Noise Level (dBA)
8.0	90
6.0	92
4.0	95
3.0	97
2.0	100
1.5	102
1.0	105
0.5	110
0.25	115

Source: (Ex. 2a, p. 4.6-1.)

OSHA's regulations further specify a hearing conservation program that involves:

- monitoring the noise to which workers are exposed;
- assuring that workers are made aware of overexposure to noise; and
- periodically testing the workers' hearing to detect any degradation. (Ex. 2a, p. 4.6-1.)

Fresno County, Staff believes that an increase not exceeding 10 dBA would satisfy Fresno County LORS and be an acceptable increase in background noise levels under CEQA. (Ex. 2a, p. 4.6-11.)

[75] The Occupational Safety and Health Act of 1970, which is administered by the Department of Labor, Occupational Safety and Health Administration (OSHA), has adopted regulations to implement the statute. There are no federal laws governing offsite (community) noise. (Ex. 2a, p. 4.6-1 citing 29 U.S.C. § 651 et seq & 29 C.F.R. § 1910.95.)

Staff concluded with respect to federal LORS that:

- Applicant recognized the need to protect plant operating and maintenance personnel from noise hazards, and committed to comply with applicable federal LORS, including implementing a Hearing Conservation Program, and
- No occupational safety impacts are anticipated from SJVEC's operational noise. (Ex. 2a, p. 4.6-14; *see* **NOISE-7**.)

b. Local LORS

With respect to local LORS, Staff concluded that:

- At site G2 in the City, SJVEC's operational noise levels would exceed background noise levels by +5 to +7 dBA. Since noise levels from the plant would exceed background noise levels by more than 5 dBA (during night No. 2), they will not be in compliance with the City's noise ordinance, and therefore will be significant unless they are mitigated;
- The City Attorney is of the opinion that the City's noise ordinance only should be used to abate noise nuisances, and that the standards of the noise ordinance (ambient plus 5 decibels) should not be used as siting criteria for the plant;
- Staff is of the opinion that although the ordinance's primary function is a noise abatement tool, it is appropriate to use the standards of the ordinance as compatibility criteria to ensure the plant will not violate the ordinance provisions when it is in operation;
- Plant operational noise levels are predicted to exceed Fresno County's nighttime noise ordinance L_{50} standard of 45 dBA at residential sites 5, 6, 7, 9 and 10 (since plant noise is steady-state, the L_{50} statistical metric is the same as the L_{90}); and
- Although county staff has concluded that their noise ordinance does not apply to noise sources originating in a city that impacts county residents, Energy Commission staff is of the opinion that 45 dBA is a reasonable and very common local noise compatibility criterion. Therefore, plant operational noise levels without additional mitigation will constitute a significant impact since they exceed local noise regulations. (Ex. 2a, p. 4.6-9/10.)

c. CEQA

CEQA requires that noise impacts from a project be mitigated to a level of insignificance. In determining if a significant impact will likely occur, Energy Commission staff has followed state regulatory agency practice of assuming that a

project that increases the existing noise level at a sensitive receptor by 5 dBA or more holds the potential to produce a significant adverse impact, and that further study is warranted in such situations.[76] (Ex. 2a, p. 4.6-10, 21-23.)

A power plant operates as essentially a steady, continuous noise source, unlike the relatively random intermittent sounds that normally comprise a noise environment. As such, power plant noise contributes to, and becomes part of, the background noise level, or the sound heard when most intermittent noises cease. When no traffic is driving by, no airplanes are flying overhead, no dogs are barking, no frogs are croaking, and no strong wind is blowing, what remains is background noise. This "background noise level" is commonly described by the L_{90} value, which is the noise level exceeded 90 percent of the time. In most cases, a power plant will operate around the clock for most of the year. The plant will thus contribute to, and often define, the background noise level. (Ex. 2a, p. 4.6-10.)

In noisy urban/industrial environments, Staff has traditionally utilized the lowest hourly L_{90} value as a basis for determining the threshold of noise impacts. In a quiet rural environment, this is not necessarily the most reliable measure. Under certain circumstances, it is common in the noise industry to average noise descriptors over some relevant period of time. For example, where traffic noise defines the background noise regime, it is common to average the noise measurements over some period of time, typically the nighttime hours. (*Ibid.*)

Nighttime ambient noise levels in rural areas are typically lower than the daytime levels; differences in background noise levels of 5 to 10 dBA between day and night levels are common. Exceptions may occur when insects and frogs are active at night, and when winds blow far into the night. With this assumption, Staff usually believes it both prudent and conservative to employ the lowest nighttime background

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[76] Five dBA is considered to represent an increase in noise that is noticeable, but not necessarily annoying, to a majority of receptors.) An increase between 5 and 10 dBA should be considered adverse, but may be either significant or insignificant, depending on the particular circumstances of the situation. (Ex. 2a, p. 4.6-10; 21-23.)

noise level values as the relevant noise regime. To reflect the fact that noise levels vary naturally over the quietest periods, Staff does not assume that the single quietest hourly background noise level is the standard for determining potential impact. Rather, it is usual to calculate the average L_{90} value for the quietest period of the night, typically a period of four hours or more. (Ex. 2a, p. 4.6-10/11.)

Staff also considers the potential for annoyance by plant noise at night when residents are trying to sleep. It is common in rural areas to find that ambient noise levels are lower in winter months than in summer months. However, in summer, residents are more likely to sleep with windows open, exposing them to higher plant noise levels inside the house than in the winter months, when windows are typically closed. (Ex. 2a, p. 4.6-11.)

The projected cumulative power plant noise levels, after including the proposed noise mitigation measures at the SJVEC site are in the range of 45 dBA to 48 dBA. If constructed as proposed, the SJVEC's noise level at the nearest sensitive receptors will represent an increase of up to 22 dBA over the nighttime ambient background noise levels. Such increases in background noise levels will be clearly noticeable, and are liable to draw complaints. Staff considers such an increase to be clearly significant. (*Ibid.*)

D. Cumulative Impacts

The parties concluded that no other major new or proposed sources of noise were identified that might cause cumulative effects that could exceed the noise standards or criteria for this project. Staff concludes there are no cumulative noise impacts. (Exs. 2a, p. 4.6-14; 4B, p. 79.)

COMMISSION DISCUSSION

Resolution of our controversy on noise turns on our interpretation of the relevant LORS, particularly CEQA. Applicant aptly observes, we have held in recent cases

that the Energy Commission as the lead agency will give deference to local government's interpretation of their LORS and policies except when such an interpretation would lead to a factual error in our Decision. (*East Altamont*, p. 368; *Los Esteros* pp. 345-46 citing 20 CCR, §1714.5 (b).) In *Los Esteros* we observed that the courts of record in California have adopted this principle as law and we believe that we are bound by the courts' interpretation. Accordingly, we find that Fresno County has acquiesced to the City's LORS as the appropriate measure of the SJVEC's compliance with local LORS. This does not mean, however, that we will do as Applicant requests and remove Fresno County from the verification provisions of **NOISE-6**. We believe that Fresno County has an interest in the results of Applicant's noise survey and that the County could conceivably change its position based thereon.

Furthermore, it seems clear to us that in designing the SJVEC to better the objectives of the City's Noise Element, Applicant has met the applicable LORS requirements. We also note parenthetically that in meeting the City's LORS, the SJVEC also substantially meets the objectives of the Fresno County Noise Ordinance.

Staff describes the parties' differences as a fundamental disagreement over what constitutes a significant noise impact under CEQA. In this context, it is important to note that: (1) the SJVEC's proposed location is zoned for manufacturing to include precisely such a facility as the SJVEC, and (2) its operational noise levels will impact "a few scattered residential buildings located on farmlands surrounding the site," and seven of eight impacted property owners have accepted Applicant's offer of sound attenuation upgrades to their homes.[77]

We agree that the parties have fundamental differences as a matter of policy over what constitutes a significant impact under CEQA, and we commend the parties on

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[77] *See* Exs. 4B, p. 45; 4.B.2-8; Applicant Opening Brief, p. 23.

their competing presentations of the relevant evaluative criteria to reach a resolution of this question. However, the evidence of record persuades us that the SJVEC, with implementation of Applicant's proposed design and sound attenuation measures, will not produce a significant impact on nearby residences under any noise metric presented to us by the parties.

FINDINGS AND CONCLUSIONS

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

1. SJVEC's construction activities will produce noise.

2. Applicant performed acoustical calculations to determine the SJVEC's noise emissions, and to develop noise mitigation measures.

3. Noise due to SJVEC's construction activities would be temporary and transitory and will be mitigated to a level of insignificance by noise reduction devices, limiting construction to daytime hours, and providing notice to nearby businesses and residences.

4. SJVEC's construction noise along the natural gas and water pipeline routes will be temporary and will not result in significant adverse noise impacts.

5. SJVEC's transmission facilities will produce no noise impacts during construction and operation.

6. Applicant's noise impact analysis used the scientifically supported noise metrics of Ldn and Leq to describe the acoustic energy of the existing ambient environment and for comparison with the future acoustic energy predicted for the ambient plus SJVEC using the same noise descriptor.

7. Operational noise from the power plant will increase the existing ambient noise levels experienced at R1, the nearest sensitive receptor, by approximately 7 dBA Ldn. Receptor R2 would experience an increase of approximately 5 to 6 dBA Ldn. The resultant total noise level at Receptor R1 will be 52 dBA Ldn (or 47 dBA Leq). At receptor R2, the resultant total noise level will be 51 dBA Ldn (or 46 dBA Leq).

8. Four of the eight nearest receptor locations (R3, R5, R10, and G2) will increase no more than 1 dBA Ldn from the operation of the SJVEC. Two receptor locations (R6 and R9) will experience an increase of 2 dBA Ldn, or less.

9. The resulting noise level from operation of the SJVEC, after installation of onsite and offsite noise attenuation measures proposed by the Applicant, will be in compliance with the Noise Element of the City of San Joaquin General Plan.

10. Installation of onsite and offsite noise attenuation measures proposed by the Applicant will ensure that the resulting noise level from operation of the SJVEC will not substantially increase ambient noise levels at noise-sensitive receptors in the vicinity of the project.

11. No occupational safety impacts are anticipated from SJVEC's operational noise.

12. The SJVEC will not generate excessive ground-borne vibration or ground-borne noise levels.

13. No other major new or proposed sources of noise were identified that might cause cumulative effects that could exceed the noise standards or criteria for the SJVEC project.

14. Implementation of the Conditions of Certification, which follow, will ensure that noise levels in the community will not significantly increase as a result of the project.

15. With implementation of the Conditions of Certification, the project will be constructed and operated in conformity with the applicable laws, ordinances, regulations, and standards.

We therefore conclude that the SJVEC will not create any significant direct, indirect, or cumulative adverse noise impacts, and will comply with all applicable LORS.

CONDITIONS OF CERTIFICATION

NOTIFICATION OF THE COMMENCEMENT OF PROJECT CONSTRUCTION

NOISE-1 At least fifteen (15) days prior to the start of ground disturbance, the project owner shall notify all residents within one-half mile of the site and the linear facilities, by mail or other effective means, of the commencement of project construction. At the same time, the project owner shall establish a telephone number for use by the public to report any undesirable noise conditions associated with the construction and operation of the project. If the telephone is not staffed 24 hours per day, the project owner shall include an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended. This telephone number shall be posted at the project site during construction in a manner visible to passersby. This telephone number

shall be maintained until the project has been operational for at least one year.

Verification: Prior to ground disturbance, the project owner shall transmit to the CPM a statement, signed by the project manager, stating that the above notification has been performed, and describing the method of that notification, verifying that the telephone number has been established and posted at the site, and giving that telephone number.

NOISE COMPLAINT PROCESS

NOISE-2 Throughout the construction and operation of the project, the project owner shall document, investigate, evaluate, and attempt to resolve all project related noise complaints.

The project owner or authorized agent shall:

- Use the Noise Complaint Resolution Form (see Exhibit 1), or functionally equivalent procedure acceptable to the CPM, to document and respond to each noise complaint;
- Attempt to contact the person(s) making the noise complaint within 24 hours;
- Conduct an investigation to determine the source of noise related to the complaint;
- If the noise is project related, take all feasible measures to reduce the noise at its source; and
- Submit a report documenting the complaint and the actions taken. The report shall include: a complaint summary, including final results of noise reduction efforts; and, if obtainable, a signed statement by the complainant stating that the noise problem is resolved to the complainant's satisfaction.

Verification: Within five (5) 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 the Fresno County Planning Department, 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 3-day period, the project owner shall submit an updated Noise Complaint Resolution Form when the mitigation is finally implemented.

NOISE CONTROL PROGRAM

NOISE-3 The project owner shall submit to the CPM for review and approval 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 and Cal-OSHA standards.

Verification: At least thirty (30) days prior to the start of ground disturbance, the project owner shall submit to the CPM the above referenced program. The project owner shall make the program available to OSHA upon request.

STEAM BLOW MANAGEMENT

NOISE-4 If a traditional high-pressure, intermittent steam blow process is employed, the project owner shall equip steam blow piping with a temporary silencer that quiets the noise of steam blows to no greater than 59 dBA at any noise-sensitive receptor. The project owner shall conduct high-pressure, intermittent steam blows only during the hours of 6 a.m. to 6 p.m., Monday through Saturday, unless the CPM agrees to longer hours based on a demonstration by the project owner that offsite noise impacts will not cause annoyance.

If a low-pressure continuous steam blow or air blow process is employed, the project owner shall submit a description of this process, with expected noise levels and projected hours of execution, to the CPM, who shall review the proposal with the objective of ensuring that the resulting noise levels will not exceed the LORS night-time noise standard. If the low-pressure process is approved by the CPM, the project owner shall implement it in accordance with the requirements of the CPM.

Verifications:

1. At least fifteen (15) days prior to the first high-pressure , intermittent steam blow, the project owner shall submit to the CPM drawings or other information describing the temporary steam blow silencer and the noise levels expected, and a description of the steam blow schedule.

2. At least fifteen (15) days prior to any low-pressure continuous steam blow, the project owner shall submit to the CPM drawings or other information describing the process, including the noise levels expected and the projected time schedule for execution of the process.

STEAM BLOW NOTIFICATION

NOISE-5 Prior to the first steam or air blow(s), the project owner shall notify all residents within one mile of the site of the planned activity, and shall make the notification available to other area residents in an appropriate manner. The notification may be in the form of letters to the area residences, telephone calls, fliers or other effective means. The notification shall include a description of the purpose and nature of the steam or air blow(s), the proposed schedule, the expected sound levels, and the explanation that it is a one-time operation and not a part of normal plant operations.

Verification: The project owner shall notify residents and business owners at least fifteen (15) days prior to the first high-pressure steam blow(s). Within five (5) days of notifying these entities, the project owner shall send a letter to the CPM confirming that they have been notified of the planned steam blow activities, including a description of the method(s) of that notification.

NOISE RESTRICTIONS

NOISE-6 The project design and implementation shall include appropriate noise control measures adequate to ensure that noise due to operation of the project will not exceed an hourly average exterior noise level of more than 49 dBA L_{eq} measured at any existing residence.

1. No new pure-tone components may be introduced. No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints. Steam relief valves shall be adequately muffled to preclude noise that draws legitimate complaints.

2. Within 30 days of the project achieving a sustained output of 80 percent or greater of rated generating capacity, the project owner shall conduct short-term survey noise measurements at monitoring sites 1, 3, 5, 9 and 10. The short-term noise measurements shall be conducted during both daytime (7 a.m. to 10 p.m.) and nighttime (10 p.m. to 7 a.m.) periods. In addition, the applicant shall conduct a 25-hour community noise survey at monitoring site 5. The survey during power plant operations shall also include short term measurement of one-third octave band sound pressure levels at each of the above locations to ensure that no new pure-tone noise components have been introduced. The measurement of power plant noise for the purposes of demonstrating compliance with this Condition of Certification may alternatively be made at a location, acceptable to the CPM, closer to the plant (e.g., 400 feet from the plant boundary) and this measured level then mathematically extrapolated to determine the plant noise contribution at the nearest residence. However, notwithstanding the use of this alternative method for determining the noise level, the character of the plant noise shall be evaluated at the nearest residence to determine the presence of pure tone of other dominant sources of plant noise.

3. If the results from the pre-construction and operational noise surveys indicate that the noise level due to power plant noise exceeds the noise limits shown above, mitigation measures shall be implemented to reduce noise to a level of compliance with these limits.

4. If the results from the pre-construction and operational noise surveys indicate that pure-tones are present, mitigation measures shall be implemented to eliminate the pure-tones.

Verifications:

1. Within 15 days after completing the post-construction survey, the project owner shall submit a summary report of the survey to the City of San Joaquin, Fresno County, and to the CPM. Included in the post-construction survey 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. When these measures are in place, the project owner shall repeat the operational noise survey.

2. Within 15 days of completion of the new survey, 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.

OCCUPATIONAL NOISE SURVEY

NOISE-7 Following the project first achieving a sustained output of 80 percent or greater of rated capacity, the project owner shall conduct an occupational noise survey to identify the noise hazardous areas in the facility. The survey shall be conducted by a qualified person in accordance with the provisions of Title 8, California Code of Regulations, sections 5095-5099 (Article 105) and Title 29, Code of Federal Regulations, section 1910.95. The survey results shall be used to determine the magnitude of employee noise exposure.

The project owner shall prepare a report of the survey results and, if necessary, identify proposed mitigation measures that will be employed to comply with the applicable California and federal regulations.

Verification: Within thirty (30) days after completing the survey, the project owner shall submit the noise survey report to the CPM. The project owner shall make the report available to OSHA and Cal-OSHA upon request.

CONSTRUCTION TIME RESTRICTIONS

NOISE-8 Heavy equipment operation and noisy construction work shall be restricted to the times of day delineated below:

Monday-Saturday 6 a.m. to 6 p.m.

Haul trucks and other engine-powered equipment shall be equipped with adequate mufflers. Haul trucks shall be operated in accordance with posted speed limits. Truck engine exhaust brake use shall be limited to emergencies.

Horizontal drill rigs may be operated on a continuous basis, provided that the rigs are fitted with adequate mufflers and engine enclosures.

Verification: The project owner shall transmit to the CPM in the first Monthly Construction Report a statement acknowledging that the above restrictions will be observed throughout the construction of the project.

NOISE-9 The project owner shall offer to pay for the following noise attenuating upgrades to the residences identified as R1, R2, R3, R4, R5 (two residences), R6, and R10 (two residences) in Figure 8.5-2 of the Application for Certification for the Central Valley Energy Center (Volumes 1 & 2), filed October 31, 2001:

- Replacement of single-pane windows with dual-pane windows;
- Replacement of hollow-core exterior doors with solid-core doors and weather stripping;
- Air conditioning; and
- Additional sound insulation in exterior walls.

The owner of each residence may select any or all of the above upgrades that the residence owner decides, in his or her sole discretion, but after consulting with the project owner, are appropriate. The residence owner and the project owner shall select a mutually acceptable contractor to perform the upgrades. The project owner shall pay the cost of the upgrades. A residence owner may decline to accept any or all of the above upgrades.

Verification: Upgrades shall, unless impossible due to circumstances beyond the project owner's control, be installed prior to the start of operation. In the first annual compliance report after start of operation, the project owner shall include documentation certifying that the noise attenuating upgrades measures either: 1) were installed on the specified residences at the project owner's expense, 2) were already a feature of the residence; or 3) that installation was offered but refused by an owner.

E. VISUAL RESOURCES

Visual resources are the natural and cultural features of the environment that contribute to the visual character or quality of the environmental surroundings. CEQA requires that projects be examined to evaluate their visual impacts on the environment. The evidence of record contains this evaluation as well as an evaluation of the SJVEC project's capacity to produce plumes visible to the area's residents and visitors.

Summary and Discussion of the Evidence

Located in a rural, sparsely populated area dominated by agriculture, the SJVEC would be located at the southernmost edge of the City of San Joaquin, and the facility would be the focal point for southerly entrance to and exit from the City.[78] (Exs. 1, Vol. 1, p. 8.11-29; 2b, p. 4.12-2; *see below* **VIS-1** & **Figure 1**.)

SJVEC's major visible components will include:

- a 120 foot tall auxiliary boiler exhaust stack;
- three 145 foot-tall HRSG exhaust stacks (the highest relief valves and vents on the HRSG units would extend to a height of 92 feet);
- a double-circuit, overhead 0.25-mile 230-kV transmission line (supported by parallel steel pole structures ranging from 110 to 125 feet tall);
- an approximately 20-mile long buried underground natural gas pipeline; (the underground gas pipeline would not be visible during operation);
- an approximately 21-mile long buried underground water supply pipeline (with occasional air release valves either flush with the ground or in two feet by three feet rectangular surface vaults two feet in height;[79] and

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[78] The SJVEC would be located at the southern portion of the triangular 85 acre site to allow for a buffer between residential areas to the north that are separated from the plant site now by vacant land. (Ex. 2b, p. 4.12-2.)

[79] Generally the gas and water pipelines will cross agricultural lands and follow existing public rights-of-way along roads. Surface conditions would be restored after gas and water pipeline construction. Pipeline construction activities, materials, and personnel would be visible to travelers along all the roads noted above.

Visual Resources Figure 1:

Key Observation Points and Project Site Context

Source: (Ex. 1, Vol. 1, Figure 8.11-2.)

- a 20-acre laydown area for equipment and construction worker parking would be located on the site to the north of the area where the project facilities would be built (the proposed construction laydown area would be primarily visible to motorists along Colorado Avenue. (Ex. 2b, p. 4.12-2/3.)

At our evidentiary hearings, the parties reached agreement on our condition related to the SJVEC's operation of the cooling tower to ensure that visual plumes in or near the City of San Joaquin will be appropriately managed. Staff concluded that visible plumes from the cooling tower, HRSG, and auxiliary boiler occurring during high contrast hours are predicted to occur at a frequency of less than 10 percent of the seasonal daylight hours from November through April when there is no fog or rain. At such low frequencies, visible water vapor plumes would not be a significant visual impact to travelers on nearby roads or to City of San Joaquin residents. (2/21 RT 4:1-2:8, 18:2-20:2; Ex. 4C, p. 89, 98; Jt. 2; *see* **VIS-7**; *cf.* Staff Opening Brief, p. 1; Applicant Opening Brief, pp. 46-47 & Att. A, p. A14.)

A. Construction Impacts

Since plume formation is associated with plant operation only, there are no construction impacts associated with plume formation. Construction [and operational] night lighting has the potential to cause significant visual impacts. To mitigate these impacts, we have adopted the parties' proposed mitigation measures for lighting and glare. We find that these conditions of certification would ensure that lighting and glare impacts would be less than significant. (Ex. 2b, p. 4.12-20/21; 4C, p. 94; see **VIS-3-6**.)

B. Operational Impacts

Applicant has committed to a SJVEC landscaping plan, which is also a zoning requirement, to minimize the facility's visual impact. Staff concluded that the SJVEC project as proposed would have the potential to cause significant adverse visual

impacts but that these impacts would be reduced to less than significant based upon:

- Applicant's onsite and offsite landscaping, site design, and treatment plan components, combined with;
- Staff's proposed conditions of certification. (2/21 RT 4:1-2:8; Exs. 2b, p. 4.12-29; 4C, pp. 94-98; Jt. 2; *see* **VIS-2**; *cf.* Staff Opening Brief, p. 1; Applicant Opening Brief, pp. 46-47 & Att. A, pp. A11-13.)

Applicant testified that implementation of the conceptual Landscape Plan would entail planting of informal clusters of tall, fast-growing eucalyptus trees mixed with slower growing valley oaks along the project site's eastern boundary next to the Union Pacific Railroad right-of-way. Along SJVEC's southern perimeter [along the Springfield Avenue frontage], clusters of valley oaks would be planted. In addition, rows of tall, fast-growing eucalyptus would be planted along the northern half of the site's western lot line to screen views toward the facility from the view corridors created by northwest/ southeast trending streets in the City southwestern neighborhoods. A row of tall, fast-growing trees would be planted on the City owned property along the eastern side of Colusa Avenue just north of Springfield Avenue to screen the views toward the project from the two rural residences at the corner of Springfield and Colusa Avenues and from areas further to the west. At the southeastern corner of the site, the dense screening landscaping would be set back from the corner to maintain driver sight lines at the intersection of Colorado and Springfield Avenues. At the corner, a grove of palm trees would be planted. The palm trees would maintain visibility at the intersection and would create a visual accent that would also mark the City's new southern boundary. A line of olive trees planted in a curving row would define the northern boundary of the grove of palm trees. The olive trees would create a dense hedge that would screen views toward the facility from the intersection and their contrasting color and form would serve as a visual counterpoint to the grove of palm trees and the nearby groupings of eucalyptus and oak trees. The revised landscape plan would also include the creation of a palm-lined boulevard along Manning Avenue between Colorado

Avenue and Placer Avenue by planting large size, tall-growing palm trees along both sides of the street in this area. (2/21 RT 9:19-16:21; (Ex. 4C, p. 96.)

Mr. Freitas offered comments that suggested Applicant's landscaping include provisions that:

- trees are picked that are indigenous to that area, and that are capable of surviving the area's weather and different climatic changes, in light of his evidence that certain foliage is ineffective;
- a mix of fruit trees, or fruit-bearing trees, "so that there could be additional beneficial gain added to the community where they could go and harvest some of the fruit." (2/21 RT 22:22-70:9; 72:22; 74:14-87:1; Ex. 5B.2-15.)

We find that with implementation of the conceptual landscape plan, the SJVEC's appearance would be similar to that depicted in Applicant's simulations presented in the AFC. (Ex. 1, Vol. 1, p. 8.5-15; *see below* **Figures 2 & 3**.)

C. Laws, Ordinances, Regulations, and Standards (LORS)

The parties concluded that the SJVEC, with mitigation as we have adopted, would be consistent with all applicable LORS. (Exs. 2b, p. 4.12-24/28 & Table 5; 4C, p. 98.)

In particular, Staff concluded that the SJVEC would be consistent or comply with:

- all of Fresno County General Plans, zoning goals, policies, and standards;
- the City's General Plan goals and policies upon implementation of Staff's proposed conditions;
- the City's height requirement zoning standard related to visual resources upon the City's future grant of a variance, conditioned on installation of a landscaping plan appropriate for the zoning designation. (Ex. 2b, p. 4.12-24.)

D. Cumulative Impacts

The parties concluded that the SJVEC would not result in cumulative impacts to visual resources. (Exs. 2b, p. 4.12-24; 4C, p. 98.)

Visual Resources Figure 2:

Visual Simulation of Project at Start of Operation

Source: (Ex. 1, Vol. 1, Figure 8.11-3b.)

Visual Resources Figure 3:

Visual Simulation of Project at Start of Operation

Source: (Ex. 1, Vol. 1, Figure 8.11-3c.)

FINDINGS AND CONCLUSION

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

1. The SJVEC would be located at the southernmost edge of the City of San Joaquin, a rural, sparsely populated area dominated by agriculture.

2. Due to the SJVEC's construction over a 24-month period, which is a relatively short-term nature of project construction, the adverse visual impacts that would occur during construction would not be significant.

3. Visible water vapor plumes would not be a significant visual impact to travelers on nearby roads or to City of San Joaquin residents.

4. SJVEC's lighting and glare impacts during construction and operation would be less than significant upon implementation of our conditions of certification.

5. The SJVEC project as proposed includes extensive landscaping that will create an attractive composition, to integrate the project visually into its overall landscape setting and, to screen project structures to the extent feasible in views from nearby areas.

6. With implementation of the final landscaping plan and the Conditions of Certification, the project will not significantly degrade the general visual character and quality of the area.

7. The SJVEC with mitigation as we have adopted would be consistent with all applicable LORS.

8. The SJVEC's impact to visual resources, when combined with the existing cumulative impact of other projects, is not cumulatively considerable, and thus does not result in a significant impact to visual resources.

We, therefore, conclude that construction and operation of the SJVEC will not cause any significant direct, indirect, or cumulative adverse visual impacts. As conditioned, the project complies with all the applicable laws, ordinances, regulations, and standards identified in the appropriate portion of Appendix A of this Decision.

CONDITIONS OF CERTIFICATION

VIS-1 To mitigate adequately visual impacts of project construction, the construction laydown area shall be set back 200 feet from Colorado Avenue.

Chain link fencing with opaque, solid slats or other screening material shall be installed on the Colorado Avenue and Manning Avenue sides of the laydown area. All staging, material, and equipment storage areas, where visible from public rights-of-way, shall be visually screened by fencing with opaque slats. All evidence of construction activities, including ground disturbance due to staging and storage areas, shall be removed and remediated upon completion of construction.

Protocol: The project owner shall submit a plan for screening construction activities at the site and staging, material, and equipment storage areas, and restoring the surface conditions of any rights-of-way disturbed during construction of the transmission line and underground pipelines. The plan shall describe the gas and water supply route. The plan shall include grading to the original grade and contouring and re-vegetation of the rights-of-way. The project owner shall not implement the plan until receiving written approval of the submittal from the California Energy Commission Compliance Project Manager (CPM).

Verifications:

1. At least 60 days prior to the start of site mobilization or ground disturbance, whichever occurs first, the project owner shall submit the plan to the CPM for review and approval. If the CPM notifies the project owner that any revisions of the plan are needed, the project owner shall submit to the CPM a revised plan within 30 days of receiving that notification.

2. The project owner shall notify the CPM within seven days after installing the screening that the screening is ready for inspection. The project owner shall notify the CPM within seven days after completing the surface restoration that the areas disturbed during construction are ready for inspection.

VIS-2 The project owner shall prepare and implement an approved perimeter and offsite landscape plan that will screen the power plant consistent with the specification set forth in the protocol below, visually integrate the project into its setting, and to the extent feasible support the City of San Joaquin's urban design objectives. Landscaping shall consist of a mix of trees, shrubs, and groundcovers. Landscaping shall include various varieties of trees along Colorado Avenue, along Colusa Avenue on the City-owned property between Springfield Avenue and Cherry Lane, and along Manning Avenue East from Colorado Avenue to Placer Avenue. Fast growing evergreen species shall be used to ensure that maximum screening is achieved as quickly as possible and year-round. Suitable irrigation shall be installed to ensure survival of the plantings. Landscaping shall be installed consistent with the City of San Joaquin zoning ordinance.

Protocol: The project owner shall simultaneously submit a landscape plan to the City of San Joaquin for review and comment, and to the CPM for review and approval. The plan shall include, but not be limited to:

1. A detailed landscape, grading, and irrigation plan, at a reasonable scale, which includes a list of proposed tree and shrub species and installation sizes, and a discussion of the suitability of the plants for the site conditions and mitigation objectives. A list of potential tree species that would be viable in this location shall be prepared by a qualified professional arborist familiar with local growing conditions, with the objective of providing the widest possible range of species from which to choose. The plan shall demonstrate how the screening conditions called for above shall be met, including evidence provided by a qualified professional arborist that the species selected are both viable and available. The plan shall specify a detailed installation schedule demonstrating installation of as much of the landscaping as early in the construction process as is feasible in coordination with project construction. Such a landscaping plan shall include the following elements:

   a. Specification of the locations proposed for each type of landscaping, and the proposed spacing of plants.

   b. For the southeastern corner of the project property (i.e. the area bound by the Union Pacific Railroad tracks on the east and Springfield Avenue on the south, and extending from southeastern end of the cooling tower to the southwest edge of the switching station), a landscape design that provides adequate screening of views toward the project facilities from the adjacent roadways, and which creates an attractive entry into the City of San Joaquin. This design shall include the use of a substantial number of palm trees at the intersection of Colorado and Springfield Avenues to create a landmark feature. Palm species of varying heights shall be used to create a vegetative mass that will provide a degree of project screening in views from the intersection at the time of planting. In the area behind the palm trees and along the edges of the project property extending from the grouping of palm trees north to the southeastern edge of the cooling tower and west to the southwestern edge of the switching station, a row of tall, fast-growing broadleaf evergreen trees and evergreen shrubs shall be specified. In the area to the west of the grouping of palms, the design of the row of broadleaf evergreen screening trees will make use of lower growing species in the areas under the proposed transmission lines where conductor clearance requirements need to be met.

   c. Two offset rows of tall fast-growing broadleaf evergreen trees extending along the perimeter of the project site from the northern corner of the site to the southeast end of the cooling tower.

   d. Along the east side of Colusa Boulevard from Springfield Avenue north for approximately ¼ mile, a row of smaller scale trees or

shrubs that are attractive in close range views planted in front of a single row of tall, fast-growing broadleaf evergreen trees.

e. Two offset rows of fast-growing tall broadleaf evergreen trees around the perimeter of the northern corner of the project site.

f. Along the south side of Manning Avenue between Colorado Avenue and Placer Avenue, a single row of palm trees that are of a species that are consistent with the City of San Joaquin's street tree plan for this area and which are a minimum of 15 feet in height at the time of planting. In order to provide a measure of eye-level screening of views toward the project site from Manning Avenue and viewpoints to the north, the spaces between the palm trees shall be planted with lower growing evergreen trees or shrubs; the selection of which species of tree or shrub to use should be made in consultation with the City of San Joaquin. Along the north side of Manning Avenue between Colorado Avenue and Placer Avenue, a single row of palm trees that are of a species that are consistent with the City of San Joaquin's street tree plan for this area and which are a minimum of 15 feet in height at the time of planting.

g. Along the western edge of the project site, extending from the northwest corner to a point approximately 200 feet south of Cherry Lane, a staggered row of tall, fast-growing broadleaf evergreen trees.

h. The gas metering station shall be given landscaping that will cause it to blend into its setting.

2. Maintenance procedures, including any needed irrigation and a plan for routine annual or semi-annual debris removal for the life of the project.

3. A procedure for monitoring for and replacement of unsuccessful plantings for the life of the project.

4. The project owner shall not implement the plan until the project owner receives approval of the plan from the CPM.

Verifications:

1. At least 60 days prior to start of construction (defined as onsite work to install permanent equipment or structures for any facility), the project owner shall submit the landscape plan to the City of San Joaquin for review and comment and to the CPM for review and approval.

2. If the CPM notifies the project owner that revisions of the submittal are needed, within 30 days of receiving that notification the project owner shall prepare and submit to the CPM a revised submittal.

3. The project owner shall complete installation of the landscaping prior to the start of commercial operation. The project owner shall notify the CPM within seven days

after completing installation of the landscape screening that the planting and irrigation system are ready for inspection.

4. The project owner shall report landscape maintenance activities, including replacement of dead vegetation, for the previous year of operation in each Annual Compliance Report.

5. After the start of commercial operation, the CPM may inspect the landscaping and determine whether it is consistent with the plan as approved. If the CPM determines that the landscaping is not consistent with the plan as approved, within 90 days of notification by the CPM, the project owner shall provide a schedule to bring the installation of landscaping into conformance with the plan as approved.

VIS-3 Prior to first turbine roll, the project owner shall treat the surfaces of all project structures and buildings visible to the public such that their colors minimize visual intrusion and contrast by blending with the landscape; their surfaces do not create glare; and they are consistent with local laws, ordinances, regulations, and standards. The project owner shall submit for CPM review and approval, a specific treatment plan whose proper implementation will satisfy these requirements. The treatment plan shall include:

a. Specification, and 11" x 17" color simulations at life size scale, of the treatment proposed for use on project structures, including structures treated during manufacture;

b. A list of each major project structure, building, tank, transmission line tower and/or pole, and fencing/walls specifying the color(s) and finish proposed for each (colors must be identified by name and by vendor brand or a universal designation);

c. Two sets of brochures and/or color chips for each proposed color;

d. One-foot square samples of each proposed treatment and color on each pre-fabricated/colored material that will be visible to the public;

e. A detailed schedule for completion of the treatment; and

f. A procedure to ensure proper treatment maintenance for the life of the project.

The project owner shall not specify to the vendors the treatment of any buildings or structures treated during manufacture, or perform the final treatment on any buildings or structures treated on site, until the project owner receives notification of approval of the treatment plan by the CPM.

<u>Verifications</u>:

1. The project owner shall submit its proposed treatment plan at least 90 days prior to ordering the first structures that are color treated during manufacture. If a

revision is required, the project owner shall provide the CPM with a revised plan within 30 days of receiving notification that revisions are needed.

2. Prior to first turbine roll, the project owner shall notify the CPM that all buildings and structures are ready for inspection. The project owner shall provide a status report regarding treatment maintenance in the Annual Compliance Report.

VIS-4 The project owner shall design and install all permanent lighting such that light bulbs and reflectors are not visible from public viewing areas; lighting does not cause reflected glare; and illumination of the project, the vicinity, and the nighttime sky is minimized. To meet these requirements the project owner shall ensure that:

a. Lighting shall be designed so 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 the lighting shall be such that the luminescence or light source is shielded to prevent light trespass outside the project boundary;

b. All lighting shall be of minimum necessary brightness consistent with worker safety;

c. High illumination areas not occupied on a continuous basis (such as maintenance platforms) shall have switches or motion detectors to light the area only when occupied;

d. A lighting complaint resolution form (following the general format of that in Attachment 1) shall 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.

Verifications:

1. At least 60 days prior to ordering any permanent exterior lighting, the project owner shall submit to the CPM for review and comment written documentation describing the lighting control measures and fixtures, hoods, shields proposed for use, and incorporate the CPM's comments in lighting equipment orders.

2. Prior to first turbine roll, the project owner shall notify the CPM that the lighting has been completed and is ready for inspection. If the CPM notifies the project owner that modifications to the lighting are needed, within 30 days of receiving that notification the project owner shall implement the modifications and notify the CPM that the modifications have been completed.

3. The project owner shall report any complaints about permanent lighting and provide documentation of resolution in the Annual Compliance Report, accompanied by any lighting complaint resolution forms for that year.

VIS-5 The project owner shall ensure that lighting for construction of the power plant is used in a manner that minimizes potential night lighting impacts, as follows:

a. All lighting shall be of minimum necessary brightness consistent with worker safety.

b. All fixed position lighting shall be shielded, hooded, and directed downward to minimize backscatter to the night sky and direct light trespass (direct lighting extending outside the boundaries of the construction area).

c. Wherever feasible and safe, lighting shall be kept off when not in use and motion detectors shall be employed.

d. A lighting complaint resolution form (following the general format of that in Attachment 1) shall be maintained by plant construction management, to record all lighting complaints received and to document the resolution of that complaint.

Verifications:

1. At least 60 days prior to ordering any permanent exterior lighting, the project owner shall submit to the CPM for review and approval written documentation describing the lighting control measures and fixtures, hoods, shields proposed for use. The project owner shall incorporate the CPM's comments in lighting equipment orders.

2. Prior to the first turbine roll, the project owner shall notify the CPM that the lighting has been completed and is ready for inspection.

3. The project owner shall report any complaints about permanent lighting and provide documentation of resolution in the Annual Compliance Report for that year.

VIS-6 The project owner shall design project signs using non-reflective materials and unobtrusive colors. The project owner shall ensure that signs comply with the applicable City of San Joaquin zoning requirements that relate to visual resources. The design of any signs required by safety regulations shall conform to the criteria established by those regulations.

The project owner shall submit a signage plan for the project to the City of San Joaquin for review and comment, and to the CPM for review and approval. The submittal to the CPM shall include the City's comments. The project owner shall not implement the plan until the project owner receives approval of the submittal from the CPM.

Verifications:

1. At least 60 days prior to installing signage, the project owner shall submit the plan to the CPM for review and approval.

2. If the CPM notifies the project owner that revisions of the plan are needed, 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 signage that they are ready for inspection.

VIS-7 The project owner shall ensure that the SJVEC cooling tower is designed and operated so that the plume frequency will not increase from the design as certified.

Verifications:

1. At least 30 days prior to ordering the cooling towers, the project owner shall provide to the CPM for review the final design specifications of the cooling tower related to plume formation. The project owner shall not order the cooling tower until notified by the CPM that the following two design requirements have been satisfied:

a. The cooling tower design confirms that the exhaust air flow rate per heat rejection rate (1) will not be less than 27.2 kilograms per second per megawatt when operating without duct firing when ambient temperatures are between 32 degrees Fahrenheit and 100 degrees Fahrenheit; and (2) will not be less than 15.7 kilograms per second per megawatt when operating with duct firing when ambient temperatures are between 32 degrees Fahrenheit and 100 degrees Fahrenheit.

b.. The project owner shall provide a written certification in each Annual Compliance Report to demonstrate that the cooling towers have consistently been operated within the above-specified design parameters, except as necessary to prevent damage to the cooling tower. If determined to be necessary to ensure operational compliance, based on legitimate complaints received or other physical evidence of potential non-compliant operation, the project owner shall monitor the cooling tower operating parameters in a manner and for a period as specified by the CPM. For each period that the cooling tower operation monitoring is required, the project owner shall provide to the CPM the cooling tower operating data within 30 days of the end of the monitoring period. The project owner shall include with this operating data an analysis of compliance and shall provide proposed remedial actions if compliance cannot be demonstrated.

Appendix A

LORS: Laws, Ordinances, Regulations, and Standards

AIR QUALITY

FEDERAL

Under the Federal Clean Air Act, as codified in 40 CFR 52.21, there are two major components of air pollution control requirements for stationary sources, nonattainment New Source Review (NSR) and Prevention of Significant Deterioration (PSD). Nonattainment NSR is a permitting process for evaluation of those pollutants that violate federal ambient air quality standards. Conversely, PSD is a permitting process for evaluation of those pollutants that do not violate federal ambient air quality standards. The NSR analysis has been delegated by the U.S. Environmental Protection Agency (U.S. EPA) to the San Joaquin Valley Air Pollution Control District (SJVAPCD, or District). The U.S. EPA determines the conformance with the PSD regulations. The PSD requirements apply only to those projects (known as major sources) that exceed 250 tons per year for any pollutant, or any new facility or stationary source category that is listed in 40 CFR Part 52.21(b)(1)(i)(a), and that emits 100 tons or more per year of any criteria pollutant. A major modification at an existing major source that results in an emission increase of 100 ton per year for carbon monoxide (CO), 40 tons per year for oxides of nitrogen (NO_x), sulfur dioxide (SO_2) or volatile organic compounds (VOC), or 15 tons per year for particulate matter less than 10 microns in diameter (PM_{10}) will also be subject to PSD review. The entire program, including both nonattainment NSR and PSD reviews, is referred to as the federal NSR program.

Title V of the federal Clean Air Act requires states to implement and administer an operating permit program to ensure that large sources operate in compliance with the requirements included in 40 CFR Part 70. A Title V permit contains all of the requirements specified in different air quality regulations that affect an individual project. As a new major source, the SJVEC will require a Title V permit.

The SJVEC is also subject to the federal New Source Performance Standards (NSPS) for the combustion turbines (40 CFR 60 Subpart GG). This regulation has pollutant emission requirements that are less stringent than those that will be required by NSR requirements for best available control technology (BACT).

The U.S. EPA reviews and approves the SJVAPCD (District) regulations and has delegated to the SJVAPCD the implementation of the federal NSR, Title V, and NSPS programs. The District implements these programs through its own rules and regulations, which are, at a minimum, as stringent as the federal regulations. The U.S. EPA will complete the PSD permit. The Title V program, however, is administered by the District under Regulation XXX. In addition, the U.S. EPA has also delegated to the District the authority to implement the federal Clean Air Act Title IV “acid rain” program. The Title IV regulation requirements will include obtaining a Title IV permit prior to operation, the installation of continuous

emission monitors to monitor acid deposition precursor pollutants, and obtaining Title IV allowances for emissions of SO_x. Regulation XXXI implements the federal Title IV program. Therefore, compliance with the District's rules and regulations will result in compliance with federal requirements.

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 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."

LOCAL

The proposed project is subject to the following San Joaquin Valley Air Pollution Control District (District) Rules and Regulations:

Rule 1080 – Stack Monitoring

This rule grants the Air Pollution Control Officer the authority to request the installation and use of continuous emissions monitors (CEM's), and specifies performance standards for the equipment and administrative requirements for record keeping, reporting, and notification.

Rule 1081 – Source Sampling

This rule requires adequate and safe facilities for use in sampling to determine compliance with emission limits, and specifies methods and procedures for source testing and sample collection.

Rule 1100 – Equipment Breakdown

This rule defines a breakdown condition, the procedures to follow if one occurs, and the requirements for corrective action, issuance of an emergency variance, and reporting. This rule is applied to the owner of any source operation with air pollution control equipment, or related operating equipment that controls air emissions, or continuous monitoring equipment.

Rule 2010 – Permits Required

This rule requires any person who is building, altering, replacing or operating any source that emits, may emit air contaminants, or may reduce emissions, to first obtain authorization from the District in the form of an Authority to Construct or a Permit to Operate. By the submission of an ATC application, GWF Energy LLC is complying with the requirements of the rule.

Rule 2201 – New and Modified Stationary Source Review Rule

The main function of the District's New Source Review Rule is to allow for the issuance of Authorities to Construct, Permits to Operate, the application of Best

Available Control Technology (BACT) to new or modified permit source and to require the new permit source to secure emission offsets.

Section 4.1 – Best Available Control Technology

Best Available Control Technology is defined as: a) the mandatory performance levels that are contained in any State Implementation Plan and that have been 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 that the District's Air Pollution Control Officer (APCO) finds is technologically feasible and is cost effective. BACT is required for NO_x, VOC, PM_{10} and SO_2 emissions from any new or modified emission unit that results in an emissions increase of 2 lb/day, and CO emissions that exceed 550 lb/day. In the case of SJVEC, BACT applies for NO_x, VOC, CO, SO_2, and PM_{10} emissions from all point sources of the project.

Section 4.2 – Offsets

Emissions offsets for new or modified sources are required when those sources exceed the following emission levels:

- Oxides of Nitrogen, NO_x – 10 tons/year
- Volatile Organic Compounds, VOC – 10 tons/year
- Carbon Monoxide, CO – 550 lbs/day
- PM10 – 80 lbs/day
- Sulfur Oxides, SO_x – 150 lbs/day

If constructed, the SJVEC would exceed all of the above emission levels, except SO_x; therefore, the District will require offsets for NO_x, VOC, CO and PM_{10}. The emission offsets provided shall be adjusted according to the distance of the offset from the project proposed site. The ratios are:

- Internal or on-site source – 1 to 1
- 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 PM_{10} precursors for PM_{10}) on a case-by-case basis, provided that the Applicant 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 requirement (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 4.3.3 requires that the Applicant of a proposed new major source demonstrate to the satisfaction of the District that all major stationary sources subject to emission limitations that are owned or operated by the Applicant or any entity controlling or under common control with the Applicant in California, are in compliance or on a schedule for compliance with all applicable emission limitations and standards.

Rule 2520 – Federally Mandated Operating Permits

Rule 2520 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 megawatts (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 Permit (Rule 2520). The specific requirements for the SJVEC project will be discussed in the "Compliance with LORS – Local" later in this analysis.

Rule 4001 – New Source Performance Standards

Rule 4001 specifies that a project must meet the requirements of the Federal New Source Performance Standards (NSPS), according to Title 40, Code of Federal Regulations, Part 60, Chapter 1. Subpart GG, which pertains to Stationary Gas Turbines, requires that a project meet specific NO_x concentration limits, based on the heat rate of combustion. In addition, the SO_2 concentration shall be less than 150 parts per million by volume (ppmv) and the sulfur content of the fuel shall be no greater than 0.8 percent by weight.

Rule 4101 – Visible Emissions

Prohibits visible air emissions, other than water vapor, of more than No. 1 on the Ringelmann chart (20 percent opacity) for more than 3 minutes in any 1-hour.

Rule 4102 – Nuisance

Prohibits any emissions "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 person or public or which cause or have a natural tendency to cause injury or damage to business or property."

Rule 4201 – Particulate Matter Concentration

Limits particulates emissions from any source that emits or may emit dust, fumes, or total suspended particulate matter to less than 0.1 grain per dry standard cubic foot (gr/dscf) of gas calculated to 12 percent of carbon dioxide.

Rule 4202 – Particulate Matter Emission Rate

This rule limits particulate matter emissions for any source operation, which emits or may emit particulate matter emissions, by establishing allowable emission rates. Calculation methods for determining the emission rate based on process weight are specified.

Rule 4301 – Fuel Burning Equipment

Limits air contaminant emissions from fuel burning equipment used for the primary purpose of producing heat or power by indirect heat transfer to 0.1 gr/dscf of gas calculated to 12 percent of carbon dioxide, 200 lb/hr of SO_2 , 140 lb/hr of NO_x, and 10 lb/hr of combustion contaminants, which are defined as particulate matter discharged into the atmosphere from the burning of any kind of material containing carbon in a free or combined state.

Rule 4305 – Boilers, Steam Generators and Process Heaters

Limits NO_x and CO concentrations to no greater than 30 parts per million by volume dry (ppmvd) or (0.036 pounds-per-million British thermal units, lb/MMBtu) and 400 ppm, respectively.

Rule 4351 – Boilers, Steam Generators, and Process Heaters – Reasonably Available Control Technology

This rule limits emissions of oxides of nitrogen (NO_x) from boilers, steam generators, and process heaters with rated heat inputs greater than 5 million Btu per hour that are fired with gaseous and/or liquid fuels, and are included as a major NO_x source, to levels consistent with reasonably available control technology (RACT). This rule limits the NO_x emission and CO emissions to 90 ppm and 400 ppm at 3 percent O_2, respectively, when firing gaseous fuels. The SJVEC duct burners and auxiliary boiler are subject to this rule.

Rule 4701 – Stationary Internal Combustion Engines

Limits NO_x, CO and VOC emissions from internal combustion engines rated greater than 50 bph that require a Permit to Operate. Since the emergency generator and fire water pump proposed for this project will be limited to 200 hours per year of non-emergency operation, they are exempt from this rule.

Rule 4703 – Stationary Gas Turbines

Establishes requirements for monitoring and record keeping for NO_x and CO emissions from new or modified stationary gas turbines with a designed power of 0.3 MW or higher. According to this rule, at 15 percent O_2, NO_x and CO concentrations must be less than 9 ppm and 200 ppm, respectively.

Rule 4801 – SO_2 Concentration

Limits the emissions of sulfur compounds to no greater than 0.2 percent by volume calculated as SO_2 on a dry basis.

Rule 7012 – Hexavalent Chromium – Cooling Towers

This rule limits emissions of hexavalent chromium from circulating water in cooling towers and prohibits the use or sale of products containing these compounds for treating cooling tower water. Record keeping and monitoring requirements, test methods for determining emission concentration limits, and an implementation schedule are specified.

Rule 8011 – General Requirements

Specifies the types of chemical stabilizing agents and dust suppressant materials that can (and cannot) be used to minimize fugitive dust from anthropogenic (man-made) sources. The rule also specifies test methods for determining compliance with visible dust emission (VDE) standards, stabilized surface conditions, soil moisture content, silt content for bulk materials, silt content for unpaved roads and unpaved vehicle/equipment traffic areas, and threshold friction velocity (TFV). Records shall be maintained only for those days that a control measure was implemented, and kept for one year following project completion to demonstrate compliance. A fugitive dust management plan for unpaved roads and unpaved vehicle/equipment traffic areas is discussed as an alternative for Rule 8061 and Rule 8071.

Rule 8021 – Construction, Demolition, Excavation, Extraction and Other Earthmoving Activities

Requires fugitive dust emissions throughout construction activities (from pre-activity to active operations and during periods of inactivity) to comply with the conditions of a stabilized unpaved road surface and to not exceed an opacity limit of 20 percent, by means of water application, chemical dust suppressants, or constructing and maintaining wind barriers. A Dust Control Plan is also required and shall be submitted to the Air Pollution Control Officer (APCO) at least 30 days prior to the start of any construction activities on any site that include 40 acres or more of disturbed surface area, or will include moving more than 2,500 cubic yards per day of bulk materials on at least three days.

Rule 8031 – Bulk Materials

Limits the fugitive dust emissions from the outdoor handling, storage and transport of bulk materials. Requires fugitive dust emissions to comply with the conditions of a stabilized unpaved road surface and to not exceed an opacity limit of 20 percent. 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 8041 – Carryout and Trackout

Limits carryout and trackout during construction, demolition, excavation, extraction, and other earthmoving activities (Rule 8021), from bulk materials

handling (Rule 8031), and from unpaved vehicle and equipment traffic areas (Rule 8071) where carryout has occurred or may occur. Specifies acceptable (and unacceptable) methods for cleanup of carryout and trackout.

Rule 8051 – Open Areas

Requires fugitive dust emissions from any open area having 3.0 acres or more of disturbed surface area, that has remained undeveloped, unoccupied, unused, or vacant for more than seven day to comply with the conditions of a stabilized unpaved road surface and to not exceed an opacity limit of 20 percent, by means of water application, chemical dust suppressants, paving, applying and maintaining gravel, or planting vegetation.

Rule 8061 – Paved and Unpaved Roads

Specifies the width of paved shoulders on paved roads and guidelines for medians. Requires gravel, roadmix, paving, landscaping, watering, and/or the use of chemical dust suppressants on unpaved roadways to prevent exceeding an opacity limit of 20 percent. Exemptions to this rule include “any unpaved road segment with less than 75 vehicle trips for that day.”

Rule 8071 – Unpaved Vehicle/Equipment Traffic Areas

This rule intends to limit fugitive dust from unpaved vehicle and equipment traffic areas one acre or larger by using gravel, roadmix, paving, landscaping, watering, and/or the use of chemical dust suppressants to prevent exceeding an opacity limit of 20 percent. Exemptions to this rule include “unpaved vehicle and equipment traffic areas on any day which less than 75 vehicle trips occur.”

Rule 8081 – Agricultural Sources

This rule intends to limit fugitive dust from off-field agricultural sources exempted from Rules 8031 (Bulk Materials), 8061 (Paved and Unpaved Roads), and 8071 (Unpaved Vehicle/Equipment Traffic Areas). Requires fugitive dust emissions to comply with the conditions of a stabilized surface and to not exceed an opacity limit of 20 percent.

ALTERNATIVES

The "Guidelines for Implementation of the California Environmental Quality Act," Title 14, California Code of Regulation §15126.6(a), provide direction by requiring an evaluation of the comparative merits of "a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project." In addition, the analysis must address the "no project" alternative [Cal. Code Regs., tit. 14, §15126.6(e)].

The range of alternatives is governed by the "rule of reason," which requires consideration only of those alternatives necessary to permit informed decision-making and public participation. The California Environmental Quality Act (CEQA) states that an environmental document does not have to consider an alternative for which the effect cannot be reasonably ascertained and of which the implementation is remote and speculative [Cal. Code Regs., tit. 14, §15125(d)(5)]. However, if the range of alternatives is defined too narrowly, the analysis may be inadequate [*City of Santee v. County of San Diego* (4th Dist. 1989) 214 Cal. App. 3d 1438].

BIOLOGICAL RESOURCES

FEDERAL

Clean Water Act of 1977
Title 33, United States Code, Sections 1251-1376 and Section 330.5(a)(26), prohibits the discharge of dredged or fill material into the waters of the United States without a permit.

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., designates and provides 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 of any bird without prior authorization.

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 non-game bird, or any part thereof, as designated in the Migratory Bird Treaty Act.

Fully Protected Species
Fish and Game Code Sections 3511, 4700, 5050, 5515 prohibit 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.

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.

CULTURAL RESOURCES

STATE

California Code of Regulations, Title 14, Chapter 11.5, Section 4852 defines the term "cultural resource" to include buildings, sites, structures, objects, and historic districts.

Public Resources Code, Section 5000 establishes a California Register of Historic Resources; determines significance of and defines eligible properties; makes any unauthorized removal or destruction of historic resources on sites located on public land a misdemeanor; prohibits obtaining or possessing Native American artifacts or human remains taken from a grave or cairn; defines procedures for the notification of discovery of Native American artifacts or remains; and, declares that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated.

The California Environmental Quality Act (CEQA) (Public Resources Code, Section 21000 et seq.; Title 14, California Code of Regulations, Section 15000 et seq.) requires analysis of potential environmental impacts of proposed projects and requires application of feasible mitigation measures.

Public Resources Code Section 21083.2 states that the lead agency determines whether a project may have a significant adverse effect on “unique” archeological resources; if so, an EIR shall address these resources. If potential for damage to unique archeological resources can be demonstrated, the lead agency may require reasonable steps to preserve the resource in place. Otherwise, mitigation measures shall be required as prescribed in this section. The section discusses excavation as mitigation, limits the Applicant’s cost of mitigation, sets time frames for excavation, defines “unique and non-unique archaeological resources,” and provides for mitigation of unexpected resources.

Public Resources Code Section 21084.1 states 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 an “historic resource” and describes what constitutes a “significant” historic resource.

CEQA Guidelines, Title 14, California Code of Regulations, Section 15126.4(b) prescribes the manner of maintenance, repair, stabilization, restoration, conservation, or reconstruction enacted as mitigation of a project’s impact on an historical resource; discusses documentation as a mitigation measure; and 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, Section 15064.5 defines the term “historical resources,” explains when a project may have a significant effect on historic resources, describes CEQA’s applicability to archaeological sites, and specifies the relationship between “historical resources” and “unique archaeological resources.”

Penal Code, Section 622 1/2 states that anyone who willfully damages an object or thing of archaeological or historic interest is guilty of a misdemeanor.

California Health and Safety Code, Section 7050.5 states that if human remains are discovered during construction, the project owner is required to contact the county coroner.

LOCAL

The Fresno County policies concerning measures for the preservation and protection of historical and cultural resources are contained in the General Plan Update EIR (Fresno County 2000) OS-J.1 through J.8. In addition, Chapter 6 (Recreation, Historical, and Archaeological Resources) provides background information with respect to the region’s historical and prehistorical development, and Appendix 6-A (Historic Resources) lists all known historic properties in the County.

The City of San Joaquin Comprehensive General Plan and EIR (City of San Joaquin 1996) states that there are no known archaeological sites or State of California Historical Landmarks within the planning area. The document also states that the historic value of older structures will be reviewed on a case by case basis, and that some may qualify for the historic registry. Further, in the City of San Joaquin’s Southeast Area Annexation Initial Study/Negative Declaration (City of San Joaquin 2001), proposed Mitigation Measure 5 seeks to reduce potential impacts to prehistoric and historic resources to a less than significant level by specifying consultations with a qualified archaeologist during various stages of ground-disturbing activities in the project area.

POWER PLANT EFFICIENCY

FEDERAL

No federal laws apply to the efficiency of this project.

STATE

California Environmental Quality Act Guidelines

CEQA Guidelines state that the environmental analysis "…shall describe feasible measures which could minimize significant adverse impacts, including where relevant, inefficient and unnecessary consumption of energy" (Cal. Code Regs., tit. 14, § 15126.4(a)(1)). Appendix F of the Guidelines further suggests consideration of such factors as the project's energy requirements and energy use efficiency; its effects on local and regional energy supplies and energy resources; its requirements for additional energy supply capacity; its compliance with existing energy standards; and any alternatives that could reduce wasteful, inefficient and unnecessary consumption of energy (Cal. Code regs., tit. 14, § 15000 et seq., Appendix F).

LOCAL

No local ordinances apply to power plant efficiency.

POWER PLANT 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)).

FACILITY DESIGN

The applicable LORS for each engineering discipline (civil, structural, mechanical, electrical, and controls) are described in the AFC Section 10.4, and in the following AFC Appendices (SJVEC 2001a):

- Appendix 10A – Civil Engineering Design Criteria
- Appendix 10B – Structural Engineering Design Criteria
- Appendix 10C – Mechanical Engineering Design Criteria
- Appendix 10D – Electrical Engineering Design Criteria
- Appendix 10E – Control Systems Engineering Design Criteria
- Appendix 10F – Chemical Engineering Design Criteria
- Appendix 10G – Geologic and Foundation Design Criteria

Some of these LORS include: California Building Code (CBC), American National Standards Institute (ANSI), American Society of Mechanical Engineers (ASME), American Society for Testing and Materials (ASTM), and the American Welding Society (AWS).

GEOLOGY, MINERAL RESOURCES, AND PALEONTOLOGY

FEDERAL

There are no federal LORS for geologic hazards and resources, grading or paleontologic resources for the proposed project. The Federal Antiquities Act of 1906 (L 59-209; 16 United States Code 431 *et seq.*; 34 Stat. 25), in part, protects paleontologic resources from vandalism and unauthorized collection on federal land. The National Environmental Policy Act of 1968 (United States Code, Section 4321 4327; 40 Code of Federal Regulations, Section 1502.25), as amended, requires analysis of potential environmental impacts to important historic, cultural, and natural aspects of our national heritage.

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 the investigation, design (Chapters 16 and 18) and construction (including grading and erosion control as found in Appendix Chapter 33). The *CBC* supplements the *UBC*'s grading and construction ordinances and regulations.

The California Environmental Quality Act 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 paleontologic resource or site or unique geologic 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 geologic hazards.
- Sections (X) (a) and (b) pose questions about the project's effect on mineral resources.

The "Measures for Assessment and Mitigation of Adverse Impacts to Non-renewable Paleontologic Resources: Standard Procedures" (Society of Vertebrate Paleontology [SVP], 1995) is a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontologic resources. They were adopted in October 1995 by the Society of Vertebrate Paleontologists (SVP), a national organization.

HAZARDOUS MATERIALS MANAGEMENT

FEDERAL

The Superfund Amendments and Reauthorization Act of 1986 (42 USC §9601 et seq.) contains the Emergency Planning and Community Right To Know Act (also known as SARA Title III). The Clean Air Act (CAA) of 1990 (42 USC 7401 et seq. as amended) established a nationwide emergency planning and response program and imposed reporting requirements for businesses which store, handle, or produce significant quantities of extremely hazardous materials. The CCA section on Risk Management Plans - codified in 42 USC §112(r) - 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 both SARA Title III and the CAA are reflected in the California Health and Safety Code, section 25531 et seq. Due to the petroleum-containing hazardous materials that will be used on this site, a Spill Prevention Control and Countermeasure Plan (SPCC) is required by Federal Regulations (Hazardous Waste Contingency Plan Title 40, Part 112.7).

STATE

The California Health and Safety Code, section 25534, directs facility owners, storing or handling acutely hazardous materials in reportable quantities to develop a Risk Management Plan (RMP) and submit it to appropriate local authorities, the United States Environmental Protection Agency (EPA), and the designated local Administering Agency for review and approval. The plan must include an evaluation of the potential impacts associated with an accidental release, the likelihood of an accidental release occurring, the magnitude of potential human exposure, any preexisting evaluations or studies of the material, the likelihood of the substance being handled in the manner indicated, and the accident history of the material. This new, recently developed program supersedes the California Risk Management and Prevention Plan (RMPP).

Title 8, California Code of Regulations, Section 5189, requires facility owners to develop and implement effective safety management plans to ensure that large quantities of hazardous materials are handled safely. While such requirements primarily provide for the protection of workers, they also indirectly improve public safety and are coordinated with the RMP process.

Title 8, California Code of Regulations, Section 458 and Sections 500 - 515, set forth requirements for design, construction and operation of vessels and equipment used to store and transfer aqueous ammonia. These sections generally codify the requirements of several industry codes, including the American Society of Mechanical Engineers' (ASME) Pressure Vessel Code, the American National Standards Institute's (ANSI) K61.1, and the National Boiler

and Pressure Vessel Inspection Code. These codes apply to anhydrous ammonia and they may also be used to design storage facilities for aqueous ammonia.

California Health and Safety Code, section 41700, requires that "No person shall discharge from any source whatsoever such quantities of air contaminants or other material which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property."

Gas Pipeline

The safety requirements for pipeline construction vary according to the population density and land use, which characterize the surrounding land. The pipeline classes are defined as follows (Title 49, Code of Federal Regulations, Part 192):

- Class 1: Pipelines in locations with 10 or fewer buildings intended for human occupancy.

- Class 2: Pipelines in locations with more than 10 but fewer than 46 buildings intended for human occupancy. This class also includes drainage ditches of public roads and railroad crossings.

- Class 3: Pipelines in locations with more than 46 buildings intended for human occupancy, or where the pipeline is within 100 yards of any building or small, well-defined outside area occupied by 20 or more people on at least 5 days a week for 10 weeks in any 12 month period (The days and weeks need not be consecutive).

The natural gas pipeline would be designed for Class 3 service and would meet California Public Utilities Commission General Order 112-E and 58-A standards as well as various PG&E standards. The natural gas pipeline must be constructed and operated in accordance with the Federal Department of Transportation (DOT) regulations, including:

- Title 49, Code of Federal Regulations, Part 190, which outlines the pipeline safety program procedures;

- Title 49, Code of Federal Regulations, Part 191, Transportation of Natural and Other Gas by Pipeline; Annual Reports, Incident Reports, and Safety-Related Condition Reports, which requires operators of pipeline systems to notify the U.S. Department of Transportation of any reportable incident by telephone and then submit a written report within 30 days;

- Title 49, Code of Federal Regulations, Part 192, Transportation of Natural and Other Gas by Pipeline; Minimum Federal Safety Standards, which specifies minimum safety requirements for pipelines and includes material selection, design requirements, and corrosion protection. The safety requirements for pipeline construction vary according to the population density and land use which characterize the surrounding land. This part contains regulations governing pipeline construction, which must be, followed for Class 2 and Class 3 pipelines.

LOCAL AND REGIONAL

The Uniform Fire Code (UFC) contains provisions regarding the storage and handling of hazardous materials in Articles 79 and 80. The latest revision to Article 80 was in 1997 (Uniform Fire Code, 1997) and includes minimum setback requirements for outdoor storage of ammonia.

The California Building Code contains requirements regarding the storage and handling of hazardous materials. The appropriate jurisdiction's Chief Building Official must inspect and verify compliance with these requirements prior to issuance of an occupancy permit. A further discussion of these requirements is provided in the **Seismic** portion of this section.

The Certified Unified Program Authority (CUPA) with responsibility to review RMPs and Hazardous Materials Business Plans is the Fresno County Environmental Health Department (FCEHD).

LAND USE

FEDERAL

There are no Federal land use-related LORS that apply to this project.

STATE

Subdivision Map Act (Pub. Resources Code § 66410-66499.58)

The Subdivision Map Act provides procedures and requirements regulating land divisions (subdivisions) and the determining of parcel legality. Regulation and control of the design and improvement of subdivisions, by this Act, has been vested in the legislative bodies of local agencies. Each local agency by ordinance regulates and controls the initial design and improvement of common interest developments and subdivisions for which the Map Act requires a tentative and final map.

Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (Government Code 56000 et seq.)

This Act mandates Local Agency Formation Commissions (LAFCOs), regulatory bodies established at the county level, to oversee changes in jurisdictional boundaries that may include annexations, detachments, formations, dissolutions, consolidations, mergers, incorporations, and disincorporations of local governments, including special districts. In reviewing annexation applications, LAFCO considers whether proposed annexations will lead to logical and orderly development. It also considers whether the annexing jurisdiction has the capacity to provide adequate public services to the future developments on the land being annexed. This law also requires LAFCO to establish and periodically review the spheres of influence for each agency under its jurisdiction.

Warren-Alquist Act

Public Resources Code § 25525 states that the Energy Commission shall not certify any facility when it finds "that the facility does not conform with any applicable state, local, or regional standards, ordinances, or laws, unless the (Energy) commission determines that such a facility is required for public convenience and necessity and that there are not more prudent and feasible means of achieving such public convenience and necessity. In making the determination, the commission shall consider the entire record of the proceeding, including, but not limited to the impacts of the facility on the environment, consumer benefits, and electric system reliability." In no event shall the commission make any finding in conflict with applicable federal law or regulation. When determining if a project is in conformance with state, local or regional ordinances or regulations, the Energy Commission typically requests written conclusions, and meets and consults with applicable agencies to determine conformity.

LOCAL

Under California State planning law, each city and county must adopt a comprehensive, long-term general plan that governs the land use and physical development of all lands under its jurisdiction. The general plan is a broadly scoped document that outlines plans and proposals for the development of a city or county and any land outside its boundary that, in the planning agency's judgment, bears relation to its planning (California Government Code Section 65300 et seq.).

General plans must be comprehensive in both their geographic coverage and the range of subject matters they address. Their time horizon is typically 15 to 25 years.

At a minimum, a General Plan must include seven mandatory elements. These are: Land Use, Circulation, Housing, Conservation, Open Space, Noise, and Safety. Additional elements may be prepared to address issues that are particularly relevant to certain communities, such as economic development, historic preservation and urban design.

General Plans typically consist of a statement of goals, objectives, principles, policies, standards and programs for plan implementation.

CITY OF SAN JOAQUIN GENERAL PLAN

The City of San Joaquin (City) adopted its Comprehensive General Plan in 1996. The Plan is intended to serve the following three basic functions:

1. To enable the City Council, which also sits as the City Planning Commission, to express agreement on development policies;

2. To provide clear guidance in judging whether projects proposed by public agencies and private developers are in close agreement with policies of the General Plan; and

3. To allow and provide the basis for making intelligent changes to the Plan as time and circumstances may dictate, while true to its purposes.

In July 2001, the City Council amended the General Plan land use designation for the SJVEC site from Manufacturing Reserve (MR) to Heavy Manufacturing (HM). The General Plan contains the following key goals, objectives and policies applicable to the proposed project:.

Goal No. 1: Policies and proposals of the General Plan should seek to expand job-creating and revenue generating activities, including levels of retail, commercial service and industrial expansion that are necessary to support government services required by the expanding population base consistent with the rate of growth to be allowed.

Objective 1.A. The City will promote development of new commercial activities and shall designate land for new commercial centers during the life of the General Plan Update.

Policy 1.A.1. New commercial centers shall be required to locate in areas that are next to major transportation corridors and provide design criteria that promotes adequate vehicle circulation and parking.

Policy 1.A.2. Commercial development shall be compatible with the surrounding area.

Objective 1.B. The City will promote development of new industrial activities and shall designate land for new industrial uses during the life of the General Plan Update.

Policy 1.B.1. The City shall reserve specific sites in a variety of parcel sizes to accommodate different types of industrial activities.

Policy 1.B.2. The City shall promote the diversification of industrial activities in order to provide employment opportunities in both the agricultural and non-agricultural sectors.

Policy 1.B.4. New industrial development shall be required to locate in areas that are next to major transportation corridors and provide a design criterion that promotes adequate vehicle circulation.

Objective 1.C*. The City will promote job-creating and job-retention activities within the next five years.*

Policy 1.C.1. The City shall focus its efforts in economic development activities that provide and maximize long-term net revenues to the City.

Policy 1.C.2. The City shall focus on the development of primary wage-earner job opportunities, to strengthen the economic well being of the residents of the community.

Goal No. 3: The City will seek to manage the rate of urban expansion at a level that does not exceed the capacity of the City, the Golden Plains Unified School District or other agencies of local government to provide the necessary levels of community services and facilities required consistent with all other goals of the General Plan.

Objective 3.A. The City will develop a Comprehensive Annexation Plan (CAP) to meet future needs of commercial, industrial and residential development. With the cooperation of the LAFCO and the County of Fresno, the City will annex land

that will be needed for the next 10 years. Policies under this objective are also developed to reduce the amount of prime agricultural land that will be converted to urban uses. Implementation of this process should start within 18 months.

Goal No. 4: It is the goal of the General Plan to preserve and enhance the quality of living by preventing the degradation of the natural and man-made environment, and by taking steps to offset the effects of that degradation which already has occurred.

Objective 4.A. The General Plan Diagram designates certain undeveloped land as industrial, commercial and residential lands as "Reserves." The objective is to avoid premature development of agricultural land. The City will allow for the opening of reserve land for development, as the need arises.

Policy 4.A.1. Productive agricultural acreage should be developed under a phasing in program that will retain agricultural production as long as possible.

Industrial Land Use Policies and proposals:

The City's plans and policies promote industrial development southwest of Colorado Avenue, generally along the Union Pacific Railroad line and northeast of Railroad Avenue, as well as south of Manning Avenue and east of Colusa Avenue.

CITY OF SAN JOAQUIN ZONING ORDINANCE

The City's zoning ordinance implements the General Plan. It includes two classifications in which manufacturing uses are permitted:

- The "M" Manufacturing zone applies only to areas designated for heavy manufacturing and is designated "HM" by the General Plan.

- "M-2" Manufacturing Park zone may be applied to areas designated on the General Plan as HM or Light Manufacturing (LM).

The manufacturing zones provide standards for protecting the public health and welfare, and compatibility with surrounding land uses, including visual screening, and traffic circulation.

Section 17.60.030 of the San Joaquin Municipal Ordinance Code limits the height of buildings in the M zone to 75 feet, but provides that height variances may be granted. Chapter 17.84 of the Code "permits the issuance of a variance where special circumstances are applicable to a subject property, the granting of a variance would not be materially detrimental to the public welfare or to properties in the vicinity, and where the granting of the variance will not adversely affect the general plan or purpose of the zoning ordinance."

FRESNO COUNTY GENERAL PLAN

Fresno County (County) adopted its General Plan in October 2000. It's stated purpose is to:

- Establish a framework for analyzing local and regional conditions and needs to be able to respond effectively to problems and opportunities facing the County;

- Identify and articulate the County's economic, environmental and social goals;

- Adopt clear County policies and standards for maintaining and improving existing development and guiding the location and characteristics of future development;

- Provide residents of the County with information about their communities and with opportunities to participate in local planning and decision-making;

- Improve the coordination of community development and environmental protection activities among the County, cities, regional, State, and Federal agencies; and

- Establish a basis for subsequent planning efforts, such as preparing and updating community plans, specific plans, redevelopment plans and special studies.

The Plan contains the following goals and policies that are particularly applicable to the proposed project:

Goal LU-A: To promote the long-term conservation of productive and potentially productive agricultural land and to accommodate agricultural support services and agriculturally related activities that support the viability of agriculture and further the County's economic development goals.

Policy LU-A.1: The County shall maintain agriculturally-designated areas for agricultural use and shall direct urban growth away from valuable agricultural lands to cities, unincorporated communities, and other areas planned for such development where public facilities and infrastructure are available.

Policy LU-A.13: The County shall minimize potential land use conflicts between agricultural activities and urban land uses through the provision of appropriate buffers and other measures.

Policy LU-A.15: The County should consider the use of agricultural land preservation programs that improve the competitive capabilities of farms and ranches, thereby ensuring long-term conservation of viable agricultural operations. Examples of programs to be considered should include: land trusts;

conservation easements; dedication incentives; agricultural fee mitigation program; purchase of development rights; and agricultural buffer policies.

Goal **LU-G:** To direct urban development within city spheres of influence to existing incorporated cities and to ensure that all development in city fringe areas is well planned and adequately served by necessary public facilities and infrastructure and furthers countywide economic development goals.

Policy LU-G.1: The County acknowledges that the cities have primary responsibility for planning within their LAFCO-adopted spheres of influence and are responsible for urban development and the provision of urban services within their spheres of influence.

Policy LU-G.2: Fresno County shall work cooperatively with all cities of the County to encourage each city to adopt and maintain its respective (general) plan consistent with the Fresno County General Plan. The County shall adopt complementary planning policies through a cooperative planning process to be determined by the respective legislative bodies.

FRESNO COUNTY ZONING ORDINANCE

The County's Zoning Ordinance, as supplemented by the County Board of Supervisors on July 16, 2001, provides for the formation of two types of agricultural districts (i.e. zones). These are:

- Section 816: "AE" – Exclusive Agricultural District, with minimum parcel sizes ranging from 5 to 640 acres. "AE" zoned areas are established to protect general agricultural use from encroachment by non-agricultural uses.

- Section 817: "AL" – Limited agricultural District, with minimum parcel sizes ranging from 20 to 640 acres. "AL" zoned land is intended to allow limited agricultural use that would be protected from more intensive uses that are incompatible or injurious to their limited use. This zone is also intended to reserve and hold certain cultivated lands for future urban development.

NOISE AND VIBRATION

FEDERAL

Under the Occupational Safety and Health Act of 1970 (OSHA) (29 U.S.C. § 651 et seq.), the Department of Labor, Occupational Safety and Health Administration (OSHA) has adopted regulations (29 C.F.R. § 1910.95) designed to protect workers against the effects of occupational noise exposure. **Noise: Table 1** lists permissible noise level exposure as a function of the amount of time during which the worker is exposed. The regulations further specify a hearing conservation program that involves monitoring the noise to which workers are exposed; assuring that workers are made aware of overexposure to noise; and periodically testing the workers' hearing to detect any degradation. There are no federal laws governing offsite (community) noise.

NOISE: Table 1 - OSHA Worker Noise Exposure Standards

Duration of Noise (Hrs/day)	A-Weighted Noise Level (dBA)
8.0	90
6.0	92
4.0	95
3.0	97
2.0	100
1.5	102
1.0	105
0.5	110
0.25	115

Source: OSHA Regulation

The Federal Transit Administration (FTA) has published guidelines for assessing the impacts of ground-borne vibration associated with construction of rail projects, which have been applied by other jurisdictions to other types of projects. The FTA-recommended vibration standards are expressed in terms of the "vibration level" (VdB), which is calculated from the peak particle velocity measured from ground-borne vibration. The FTA measure of the threshold of perception is 65 VdB, which correlates to a peak particle velocity of about 0.002 inches per second (in/sec). This is the level of vibration that a person could barely feel. The FTA measure of the threshold of architectural damage for conventional sensitive structures is 100 VdB, which correlates to a peak particle velocity of about 0.2 in/sec. Vibration levels greater than this could cause damage (e.g., cracking in walls) to buildings and other structures.

STATE

California Government Code Section 65302(f) encourages each local government entity to perform noise studies and implement a noise element as part of its General Plan. In addition, the California Office of Planning and Research has published guidelines for preparing noise elements, which include

recommendations for evaluating the compatibility of various land uses as a function of community noise exposure.

The State of California, Office of Noise Control, prepared a Model Community Noise Control Ordinance, which provides guidance for acceptable noise levels in the absence of local noise standards. The Model also contains a definition of a "pure tone," which can be used to determine whether a noise source contains significant annoying tonal components. The Model Community Noise Control Ordinance further recommends that, when a pure tone is present, the applicable noise standard should be lowered (made more stringent) by 5 dBA.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires that significant environmental impacts be identified, and that such impacts be eliminated or mitigated to the extent feasible. Section XI of Appendix G of CEQA Guidelines (Cal. Code Regs., tit. 14, App. G) sets forth some characteristics that may signify a potentially significant impact. Specifically, a significant effect from noise may exist if a project would result in:

1. Exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or noise ordinance, or applicable standards of other agencies;

2. Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels;

3. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or

4. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

Energy Commission staff, in applying Item c) above to the analysis of this and other projects, has concluded that a potential for a significant noise impact exists where the noise of the project plus the background exceeds the background by 5 to 10 dBA L_{90} at the nearest sensitive receptor. Increases in ambient noise levels that are over 10 dBA are considered clearly significant.

Noise due to construction activities is usually considered to be insignificant in terms of CEQA compliance if:

1. the construction activity is temporary;
2. use of heavy equipment and noisy activities is limited to daytime hours; and
3. all feasible noise abatement measures are implemented for noise-producing equipment.

California Occupational Safety and Health Administration (Cal-OSHA)

Cal-OSHA has promulgated Occupational Noise Exposure Regulations (Cal. Code Regs., tit. 8, §§ 5095-5099) that set employee noise exposure limits. These standards are equivalent to the federal OSHA standards described above.

LOCAL

City of San Joaquin Noise Element

The Noise Element of the City of San Joaquin General Plan establishes land use-based allowable noise levels. For low-density housing, a noise level of 50 dBA or less is satisfactory during any time of the day or night. For multi-family residential uses, a noise level of 55 dBA or less is satisfactory from 7 a.m. to 10 p.m.; for the hours of 10 p.m. to 7 a.m., the recommended noise level is 50 dBA or less.

City of San Joaquin Noise Ordinance

Section 8.24.060 of the City of San Joaquin noise ordinance states: "Any noise or sound exceeding the ambient noise level at the property line of any person offended thereby, or, if a condominium or apartment house, within any adjoining living unit, by more than 5 decibels shall be deemed to be prima facie evidence of a violation of Section 8.24.050." Section 8.24.050 indicates that it is unlawful to make any unreasonably loud, unnecessary and unusual noise which disturbs the peace or quiet of any neighborhood.

Fresno County General Plan

There are six to eight residences located in unincorporated Fresno County that are within 3,000 feet of the project boundaries. The Noise Element of the Fresno County General Plan indicates that day-night average (DNL) noise levels that are 60 dB or less are "normally acceptable." Since power plants generally operate 24 hours/day and generally emit constant levels of noise, a 60 dB DNL criterion would be approximately equivalent to an hourly average (L_{eq}) noise level of 54 dB.

Fresno County Noise Ordinance

The Fresno County Noise Ordinance specifies maximum allowable noise exposure based on the minutes of operation during an hour of the noise source. For power plants that operate constantly, the applicable criterion would be the allowable noise level that occurs 30 minutes or more during an hour. For residences, the allowable exterior noise levels would be 50 dBA from 7 a.m. to 10 p.m. and 45 dBA from 10 p.m.

PUBLIC HEALTH

FEDERAL

Clean Air Act section 112 (42 U.S. Code section 7412)

Section 112 requires new sources that emit more than 10 tons per year of any specified hazardous air pollutant (HAP), or more than 25 tons per year of any combination of HAPs, to apply Maximum Achievable Control Technology (MACT).

STATE

California Health and Safety Code sections 39650 et seq.

These sections require the Air Resources Board and the Department of Health Services to establish safe exposure limits for toxic air pollutants and identify pertinent best available control technologies. They also require that the new source review rule for each air pollution control district include regulations that require new or modified procedures for controlling the emission of toxic air contaminants.

California Health and Safety Code section 41700

This section states that "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property."

LOCAL

San Joaquin Valley Air Quality Management District Rule 2201

This Rule governs new sources of emissions. All power plant owners within the District's jurisdiction are required to secure a Determination of Compliance from the District prior to commencing construction, as well as demonstrate continued compliance with regulatory limits when the project becomes operational. The pre-construction review includes demonstrating that the project will use best available control technology (BACT) and will provide any necessary emission offsets.

SOCIOECONOMICS

FEDERAL

Executive Order 12898

Executive Order 12898, "Federal Actions to address Environmental Justice (EJ) in Minority Populations and Low-Income Populations (1994)," focuses federal attention on the environment and human health conditions of minority and low-income communities, and calls on agencies to achieve environmental justice as part of this mission. The 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 issue. The agencies are required to identify and address any disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and/or low-income populations.

Civil Rights Act of 1964

Title VI of the Civil Rights Act of 1964, Public Law 88-352, 78 Stat.241 (Codified as amended in scattered sections of 42 U.S.C.), prohibits discrimination on the basis of race, color, or national origin in all programs or activities receiving federal financial assistance.

STATE

California Government Code, Sections 65996-65997

As amended by SB 50 (Stats. 1998, Ch. 407, Sec.23), these sections state that public agencies may not impose fees, charges, or other financial requirements to offset the cost for school facilities.

Title 14, California Code of Regulations, Section 15131

This section states that:

- Economic or social effects of a project shall not be treated as significant effects on the environment.
- Economic or social factors of a project may be used to determine the significance of physical changes caused by the project.
- Economic, social and particularly housing factors shall be considered by public agencies together with technological and environmental factors in deciding whether changes in a project are feasible to reduce and or avoid the significant effects on the environment.

LOCAL

County General Plans

- Fresno County General Plan, January 2000

City of San Joaquin

- City of San Joaquin General Plan, 1996; Amended July 2001 for the purpose of annexing the SJVEC site to the City. Annexation approved by the Local Agency Formation Commission (LAFCO) in August 2001.

Golden Plains Unified School District

- School Impact Fees assessed pursuant to the California Education Code Section 17620 and Government Code Section 65995(b)(2).

SOIL AND WATER RESOURCES

FEDERAL

Clean Water Act

The Clean Water Act (33 U.S.C. section 1257 et seq.) requires states to set standards to protect water quality through the regulation of point source and certain non-point source discharges to surface water. These discharges are regulated through requirements set forth in specific or general National Pollutant Discharge Elimination System (NPDES) Permits. Stormwater discharges during construction and operation of a facility, and incidental non-stormwater discharges associated with pipeline construction, also fall under this act, and are normally addressed through a General NPDES permit. In California, requirements of the Clean Water Act regarding regulation of point-source discharges and stormwater discharges are delegated to, and administered by, the nine Regional Water Quality Control Boards (RWQCBs).

Section 404 Permit to Place or Discharge Dredged or Fill Material

Section 404 of the Clean Water Act regulates the discharge of dredged or fill material into waters of the United States, including rivers, streams and wetlands. The Army Corps of Engineers (ACOE) issues site-specific or general (nationwide) permits for such discharges.

Section 401 Water Quality Certification

Section 401 of the Clean Water Act provides for state certification that federal permits allowing discharge of dredged or fill material into waters of the United States will not violate federal and state water quality standards. These certifications are issued by the RWQCBs. Proposed linear facilities can cross ephemeral drainages that are considered waters of the United States.

STATE

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1967, Water Code section 13000 et seq., requires the State Water Resources Control Board (SWRCB) and the nine RWQCBs to adopt water quality criteria to protect state waters. These criteria include the identification of beneficial uses, narrative and numerical water quality standards, and implementation procedures. The criteria for the SJVEC project area are contained in the Central Valley Region Water Quality Control Plan. These standards are typically applied to the proposed project through the Waste Discharge Requirements (WDRs) permit. The Porter-Cologne Water Quality Control Act also requires the SWRCB and the nine RWQCBs to ensure the protection of water quality through the regulation of waste discharges to land. Such discharges are regulated under Title 23, California Code of Regulations, Chapter 15, Division 3. These regulations require that the RWQCB issue Waste

Discharge Requirements specifying conditions regarding the construction, operation, monitoring and closure of waste disposal sites, including injection wells and evaporation ponds for waste disposal.

California Water Code

Section 13551 of the Water Code prohibits the use of "…water from any source of quality suitable for potable domestic use for non-potable uses, including…industrial…uses, if suitable recycled water is available…" given conditions set forth in Section 13550. These conditions take into account the quality and cost of the water, the potential for public health impacts and the effects on downstream water rights, beneficial uses and biological resources.

Section 13552.6 of the Water Code specifically identifies that the use of potable domestic water for cooling towers, if suitable recycled water is available, is an unreasonable use of water. The availability of recycled water is based upon a number of criteria, that must be taken into account by the SWRCB. These criteria are that: the quality and quantity of the reclaimed water are suitable for the use; the cost is reasonable; and the use is not detrimental to public health, will not impact downstream users or biological resources, and will not degrade water quality.

Section 13552.8 of the Water Code states that any public agency may require the use of recycled water in cooling towers if certain criteria are met. These criteria include that recycled water is available and meets the requirements set forth in section 13550; the use does not adversely affect any existing water right; and if there is public exposure to cooling tower mist using recycled water, appropriate mitigation or control is necessary.

State Water Resources Control Board Policies

The SWRCB has also adopted a number of policies that provide guidelines for water quality protection. The principle policy of the SWRCB, which addresses the specific siting of energy facilities, is the Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Power Plant Cooling (adopted by the Board on June 19, 1976, by Resolution 75-58). This policy states that use of fresh inland waters should only be used for power plant cooling if other sources or other methods of cooling would be environmentally undesirable or economically unsound. This SWRCB policy requires that power plant cooling water should come from, in order of priority: wastewater being discharged to the ocean, ocean water, brackish water from natural sources or irrigation return flow, inland waste waters of low total dissolved solids, and other inland waters. This policy also addresses cooling water discharge prohibitions.

Tertiary Wastewater Treatment permit

Under Title 22 of the California Code of Regulations, the California Department of Health Services (DHS) reviews and approves wastewater treatment systems to ensure they meet tertiary treatment standards, allowing use of recycled water for industrial processes such as for steam production and cooling water.

LOCAL

County of Fresno

The County of Fresno has permit requirements associated with Grading and Erosion Control, Encroachment Permits and securing a Franchise Agreement for the proposed natural gas and recycled water lines within County right-or-way, and requirements associated with a Well Drilling Permit.

City of San Joaquin

The City of San Joaquin requires Grading and Erosion Control permits for the SJVEC plant site and the natural gas, recycled water and domestic water pipelines, as well as Encroachment Permits for the proposed natural gas, recycled water and domestic water pipelines within city limits.

City of Fresno

The City of Fresno requires a User Agreement for Reclaimed Water for the cooling water supply from the Fresno-Clovis Wastewater Treatment Facility (WWTF).

TRAFFIC AND TRANSPORTATION

FEDERAL

Title 49, Code of Federal Regulations, Sections 171-177, govern 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, Sections 350-399, and Appendices A-G, Federal Motor Carrier Regulations, address safety considerations for the transport of goods, materials, and substances over public highways.

STATE

- 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 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., addresses the safe transport of hazardous materials.

LOCAL

Council of Fresno County Governments Regional Transportation Plan – addresses several issues and establishes goals, policies, and objectives of regional importance, including air quality, highways, streets and roads, aviation, rail, goods movement, and transportation demand efforts.

County of Fresno, General Plan-Transportation and Circulation Element- provides the framework for Fresno County decisions concerning the countywide transportation system, including various transportation modes and related facilities.

City of San Joaquin, Comprehensive General Plan and Environmental Impact Report (EIR)- presents goals and policies to coordinate the transportation and circulation system with planned land uses and to promote the efficient movement of people, goods and services within the Urban Management Planning Area.

TRANSMISSION LINE SAFETY AND NUISANCE

AVIATION SAFETY

- 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 hazards 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.

AUDIBLE NOISE AND RADIO INTERFERENCE

- Federal Communications Commission (FCC) regulations in Title 47 CFR, Section 15.25, which prohibits operation of devices or facilities with fields capable of interference with radio-frequency communication in the fields’ impact area. These regulations require all such interference to be mitigated by the operator. The potential for such interference would depend on the distance from the source in question.
- General Order 52 (GO-52), California Public Utilities Commission (CPUC), which specifies the measures necessary to prevent communication interference as related to power and communication line construction, operation and maintenance.
- Regular maintenance, which eliminates the protrusions that enhance the noise-producing impacts of electric field interactions at the conductor surface.

FIRE HAZARDS

- General Order 95 (GO-95), CPUC, “Rules for Overhead Electric Line Construction,” which 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,” which specifies utility-related measures for fire prevention.

SHOCK HAZARDS

- GO-95, CPUC. “Rules for Overhead Line Construction,” which specify uniform statewide requirements for overhead line construction regarding ground clearance, grounding, maintenance and inspection. Implementing these requirements ensures the safety of the general public and workers working on or around the line.
- Title 8, CCR, Section 2700 et seq., “High Voltage Electric Safety Orders,” which establish essential requirements and minimum standards for safely installing, operating, and maintaining electrical installations and equipment.
- National Electrical Safety Code, Part 2: Safety Rules for Overhead Lines, which has provisions intended to minimize the potential for direct or indirect contact with the energized line.
- The National Electrical Safety Code and the joint guidelines of the American National Standards Institute (ANSI) and the Institute of Electrical and Electronics Engineers (IEEE), which provide for effective grounding and other safety-related practices.

ELECTRIC AND MAGNETIC FIELD (EMF) EXPOSURE

Exposure to power-frequency electric and magnetic fields is considered capable of biological impacts at levels that are orders of magnitude higher than encountered in the power line environment. The issue of continuing concern is the possibility of significant health impacts among humans exposed in their homes at these normally low levels related to power lines and other common sources. Although the potential for such health impacts has not been established, as noted by the applicant (SJVEC 2001a, page 5-9), the CPUC (which regulates the design and operation of high-voltage lines in the state) has established specific field-reducing designs for incorporation into the general design for all new or modified lines in the state. This is the CPUC’s method for dealing with the EMF/health issue in light of the present uncertainty. Staff considers incorporation of these field strength-specific design measures as constituting compliance with present CPUC policy. The effectiveness of these field-reducing measures would in each case be reflected in the operational-phase field intensities measured during operation of the line in question. These field intensities could be estimated using established methods and later compared with the actual fields around the operating line. The electric fields are most commonly measured in units of kilovolt/meter (kV/m) while the magnetic fields are measured in units of milligauss or mG. Measured field strengths could be used to assess each operating line for incorporation of the applicable field-reducing measures.

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.

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 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. 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’s 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 SJVEC project. Also of major importance to projects 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 must 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 ascending energy bid prices so that the least cost bids are accepted early on, and the highest bids are not selected if congestion is anticipated. 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 the actual net power output required by the generating units to meet their scheduled obligations. (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

The proposed project, including the linear facilities, is not located on federally administered public lands and is not subject to federal regulations pertaining to visual resources.

STATE

None of the roadways in the project viewshed are eligible or designated State Scenic Highways, and no State scenic properties are nearby. Therefore, there are no State regulations pertaining to scenic resources applicable to the project.

LOCAL

The proposed power plant site is located within the City of San Joaquin. The linear facilities associated with the project would be located within the City and the unincorporated area of the County of Fresno. Therefore, the project would be subject to local LORS pertaining to the protection and maintenance of visual resources. LORS applicable to the proposed project are found in the General Plans and Zoning Ordinances of the City of San Joaquin and Fresno County.

Applicable LORS in the City of San Joaquin Comprehensive General Plan regarding visual resources are found in Major Goals, Objectives and Policies and the Land Use Element. The City of San Joaquin Zoning Ordinance contains pertinent LORS related to visual resources in the sections on Manufacturing Zones and Landscaping. These sections limit height of structures, and establish landscaping requirements. The Fresno County General Plan contains pertinent LORS related to visual resources in the sections on public facilities and services, and open space and conservation. The Fresno County Zoning Ordinance contains an agricultural zone that is pertinent to the project's linear facilities.

WASTE MANAGEMENT

FEDERAL

Resource Conservation and Recovery Act (42 U.S.C. § 6922)

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 that identify quantities of hazardous wastes generated and their disposition,
- Labeling practices and use of appropriate containers,
- Use of a manifest system for transportation, and
- Submission of periodic reports to the EPA or authorized state.

Title 40, Code of Federal Regulations, part 260

These sections contain regulations promulgated by the EPA to implement the requirements of RCRA as described above. Characteristics of hazardous waste are described in terms of ignitability, corrosivity, reactivity, and toxicity, and specific types of wastes are listed.

STATE

California Health and Safety Code § 25100 et seq. (Hazardous Waste Control Act of 1972, as amended).

This act creates the framework under which hazardous wastes must be managed in California. It mandates the State Department of Health Services (now the Department of Toxic Substances Control (DTSC) under the California Environmental Protection Agency, 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, § 17200 et seq. (Minimum Standards for Solid Waste Handling and Disposal)

These regulations set forth minimum standards for solid waste handling and disposal guidelines to ensure conformance of solid waste facilities with county solid waste management plans, as well as enforcement and administration provisions.

Title 22, California Code of Regulations, § 66262.10 et seq. (Generator Standards)

These sections establish requirements for generators of hazardous waste. Under these sections, waste generators must determine if their wastes are hazardous according to either specified characteristics or lists of wastes. As in

the federal program, hazardous waste generators must obtain EPA identification numbers, prepare manifests before transporting the waste off-site, and use only permitted treatment, storage, and disposal facilities. Additionally, hazardous waste must only be handled by registered hazardous waste transporters. Generator requirements for record keeping, reporting, packaging, and labeling are also established.

Title 22, California Code of Regulations, § 67100.1 et seq. (Hazardous Waste Source Reduction and Management Review)

These sections establish reporting requirements for generators of certain hazardous and extremely hazardous wastes in excess of specified limits. The required reports must indicate the generator's waste management plans and performance over the reporting period.

LOCAL

The Fresno County Human Services System's Department of Community Health, Environmental Health System, has the responsibility for administration and enforcement of the California Integrated Waste Management Act for non-hazardous solid waste at the proposed SJVEC. This agency is also the local Certified Unified Program Agency (CUPA), administering and enforcing compliance with the California Hazardous Waste Control Act.

The SJVEC must also comply with Fresno County General Plan, Public Facilities Elements PF-F.1, which mandates a hierarchical approach to waste management, and PF-F.4, which requires compliance with the County's solid waste management plan.

WORKER SAFETY AND FIRE PROTECTION

FEDERAL

In December 1970 Congress enacted Public Law 91-596, the Federal Occupational Safety and Health Act of 1970. This Act mandates safety requirements in the workplace and is found in Title 29 of the United States Code, § 651 (29 U.S.C. §§ 651 through 678). Implementing regulations are codified in Title 29 of the Code of Federal Regulations, under General Industry Standards §§ 1910.1 - 1910.1500, and clearly define the procedures for promulgating regulations and conducting inspections to implement and enforce safety and health procedures to protect workers, particularly in the industrial sector. Most of the general industry safety and health standards now in force under this Act represent a compilation of materials from existing federal standards and national consensus standards. These include standards from the voluntary membership organizations of the American National Standards Institute (ANSI) and the National Fire Protection Association (NFPA), which publishes the National Fire Codes.

The purpose of the Occupational Safety and Health (OSH) Act is to "assure so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources," (29 USC § 651). The Federal Department of Labor promulgates and enforces safety and health standards that are applicable to all businesses affecting interstate commerce. The Department of Labor established the Occupational Safety and Health Administration (OSHA) in 1971 to discharge the responsibilities assigned by the OSH Act.

Applicable Federal requirements include:

- 29 U.S. Code § 651 et seq. (Occupational Safety and Health Act of 1970);
- 29 CFR §1910.1 - 1910.1500 (Occupational Safety and Health Administration Safety and Health Regulations);
- 29 CFR §1952.170 – 1952.175 (Federal approval of California's plan for enforcement of its own Safety and Health requirements, in lieu of most of the Federal requirements found in 29 CFR §1910.1 – 1910.1500).

STATE

California passed the Occupational Safety and Health Act of 1973 (Cal/OSHA) as published in California Labor Code § 6300. Regulations promulgated as a result of the Act are codified in Title 8 of the California Code of Regulations, beginning with §337-560 and continuing with §1514 through 8568. The California Labor Code requires that the Cal/OSHA Standards Board adopt standards at least as effective as the federal standards (Labor Code § 142.3(a)) and thus all

Cal/OSHA health and safety standards meet or exceed the Federal requirements. Hence, California obtained federal approval of its State health and safety regulations, in lieu of the federal requirements published in 29 CFR §1910.1 - 1910.1500). The Federal Secretary of Labor, however, continually oversees California's program and will enforce any federal standard for which the State has not adopted a Cal/OSHA counterpart.

The State of California Department of Industrial Relations is charged with responsibility for administering the Cal/OSHA plan. The Department of Industrial Relations is further split into six divisions to oversee, among other activities: industrial accidents, occupational safety and health, labor standards enforcement, statistics and research, and the State Compensation Insurance Fund (workers compensation).

Employers are responsible for informing their employees about workplace hazards, potential exposure and the work environment (Labor Code § 6408). Cal/OSHA's principal tool in ensuring that workers and the public are informed is the Hazard Communication standard first adopted in 1981 (8 CCR §5194). This regulation was promulgated in response to California's Hazardous Substances Information and Training Act of 1980. It was later revised to mirror the Federal Hazard Communication Standard (29 CFR §1910.1200), which established on the federal level an employee's "right to know" about chemical hazards in the workplace, but added the provision of applicability to public sector employers. A major component of this regulation is the required provision of Material Safety Data Sheets (MSDSs) to workers. MSDSs provide information on the identity, toxicity, and precautions to take when using or handling hazardous materials in the workplace.

Finally, 8 CCR §3203 requires that employers establish and maintain a written Injury and Illness Prevention Program to identify workplace hazards and communicate them to its employees through a formal employee-training program.
Applicable State requirements include:

- 8 CCR §339 - List of hazardous chemicals relating to the Hazardous Substance Information and Training Act;
- 8 CCR §337, et seq. Cal/OSHA regulations;
- 24 CCR § 3, et seq. - incorporates the current addition of the Uniform Building Code;
- Health and Safety Code § 25500, et seq. - Risk Management Plan requirements for threshold quantity of listed acutely hazardous materials at the facility;
- Health and Safety Code § 25500 - 25541 - Hazardous Material Business Plan detailing emergency response plans for hazardous materials emergencies at the facility.

LOCAL

The California Building Standards Code published in Title 24 of the California Code of Regulations § 3 et seq is comprised of 11 parts containing the building design and construction requirements relating to fire and life safety, and structural safety. The Building Standards Code includes the electrical, mechanical, energy, and fire codes applicable to the project. Local planning/building and safety departments enforce the California Uniform Building Code.

National Fire Protection Association (NFPA) standards are published in the California Fire Code. The fire code contains general provisions for fire safety, including but not restricted to: 1) required road and building access for fire fighting equipment; 2) water supplies; 3) installation of fire protection and life safety systems; 4) fire-resistive construction; 5) general fire safety precautions; 6) storage of combustible materials; 7) exits and emergency escapes; and 8) fire alarm systems. The California Fire Code reflects the body of regulations published at Part 9 of Title 24 (H&S Code §18901 et seq.) pertaining to the California Fire Code.

Similarly, the Uniform Fire Code (UFC) Standards, a companion publication to the California Fire Code, contains standards of the American Society for Testing and Materials and the NFPA. It is the United State's premier model fire code. It is updated annually as a supplement and published every third year by the International Fire Code Institute to include all approved code changes in a new edition.

Applicable local (or locally enforced) requirements include:

- 1998 Edition of California Fire Code and all applicable NFPA standards (24 CCR Part 9);
- California Building Code Title 24, California Code of Regulations (24 CCR § 3, et seq.).
- Uniform Fire Code, 1997

Appendix B

Proof of Service List

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA

Application for Certification of the SAN JOAQUIN VALLEY ENERGY CENTER POWER PLANT PROJECT IN FRESNO COUNTY **(CALPINE CORPORATION)**	**Docket No. 01-AFC-22** **PROOF OF SERVICE** ***(*REVISED 12/8/03)***

I, _____, declare that on DATE, I deposited copies of the attached _____ in the United States mail at Sacramento, CA with first class postage thereon fully prepaid and addressed to the following:

DOCKET UNIT

Send the original signed document plus the required 12 copies to the address below:

CALIFORNIA ENERGY COMMISSION
DOCKET UNIT, MS-4
***Attn: Docket No. 01-AFC-22**
1516 Ninth Street
Sacramento, CA 95814-5512
*** * * ***

In addition to the documents sent to the Commission Docket Unit, also send individual copies of any documents to:

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I declare under penalty of perjury that the foregoing is true and correct.

_____
[signature]

* * * *

INTERNAL DISTRIBUTION LIST

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Appendix C

Exhibit List

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA

APPLICATION FOR CERTIFICATION OF THE SAN JOAQUIN VALLEY ENERGY CENTER POWER PLANT PROJECT IN FRESNO COUNTY (SJVEC)	**DOCKET NO: 01-AFC-22** APPLICATION COMPLETE (DATA ADEQUATE) JANUARY 9, 2003

EXHIBIT LIST[1]

APPLICANT'S EXHIBITS

Exhibit 1: Application for Certification for the Central Valley Energy Center (Volumes 1 & 2), filed October 31, 2001

Exhibit 1.1: Letter from Rick Thomas (Calpine) to CEC re: Change in Name of the Project; Change in Name of the Project Owner, dated March 4, 2002.

Testimony on Uncontested Topics

Exhibit 3: Project Description

Exhibit 3.1: Data Adequacy Supplement, dated December 13, 2001

Exhibit 3.2: Informal Data Response I-5, dated May 29, 2002

Exhibit 3A: Alternatives

Exhibit 3A.1: Data Response, Set 1A dated February 26, 2002.

Exhibit 3A.2: Staff Assessment Comments, Set 1, dated May 15, 2002.

Exhibit 3B: Compliance & Closure

Exhibit 3C: Facility Design, Power Plant Efficiency, and Power Plant Reliability

Exhibit 3D: Not used

Exhibit 3E: Not used

[1] Whether or not shown on this Exhibit List, all testimony is inclusive of the witness' prefiled qualifications in the form of employment biographies, curriculum vitae, resumes and any other statements listing qualifications and work experience. Generally, such statements were filed with prehearing conference statements.

Exhibit 3F: Not used

Exhibit 3G: Transmission System Engineering

Exhibit 3G.1: Data Adequacy Supplement, Attachment 12-TSE-1: System Impacts Study, dated December 7, 2001

Exhibit 3G.2: ISO Letter Granting Preliminary Interconnection Approval, dated December 14, 2001.

Exhibit 3G.3: Final Facilities Study Plan issued by PG&E, dated March 4, 2002.

Exhibit 3G.4: Data Response, Set 3: Transmission System Engineering Reconductoring Analysis, dated August 22, 2002.

Exhibit 3G.5 Staff's November 19, 2003, supplemental analysis of reconductoring. Admitted by stipulation at the Committee Conference of December 23, 2003,

Exhibit 3H: Transmission Line Safety & Nuisance

Exhibit 3I: Hazmat

Exhibit 3J: Worker Safety & Fire Protection

Exhibit 3K: Cultural Resources

Exhibit 3K.1: Data Response, Set 1B, dated March 12, 2002.

Exhibit 3K.2: Data Response Set 1D, dated March 29, 2002.

Exhibit 3K.3: Data Response Set 1E, dated April 4, 2002.

Exhibit 3L: Geology & Paleontology

Exhibit 3M: Land Use

Exhibit 3N: Socioeconomics

Exhibit 3N.1 Memo from Tovey Giezentanner to Mike Argentine Re: San Joaquin Valley Energy Center -- Increasing Awareness, dated March 7, 2002

Exhibit 3O: Traffic & Transportation

Exhibit 3P: Waste Management

Exhibit 3Q: Biological Resources

TESTIMONY ON CONTESTED TOPICS

Exhibit 4: Soils and Water Resources Testimony

Exhibit 4.1: Data Response, Set 1C, dated March 20, 2002

Exhibit 4.2 Engineers Report for the Production, Distribution and Use of Reclaimed Groundwater for the San Joaquin Valley Energy Center

Exhibit 4A: Air Quality and Public Health Testimony

Exhibit 4A.1: Data Response, Set 2A, dated March 29, 2002.

Exhibit 4A.2: Letter dated August 2, 2001 from Sierra Research (Matthews) to SJVUAPCD (Warner) re: cumulative impacts analysis:

Exhibit 4A.3: Air quality modeling results–CD-ROM (Docket # 22939)

Exhibit 4A.4: Letter dated November 1, 2001 from Calpine (Lamkin) to EPA (Rios) transmitting PSD permit application (Docket # 22982)

Exhibit 4A.5: Letter dated November 8, 2001 from Sierra Research (Matthews) to SJVUAPCD (Warner) re: supplemental information (Docket Nos. 23023, 23041)

Exhibit 4A.6: Letter dated November 15, 2001 from Sierra Research (Matthews) to SJVUAPCD (Warner) re: information regarding emission reduction credits (Docket # 23149)

Exhibit 4A.7: Letter dated November 20, 2001 from Sierra Research (Matthews) to SJVUAPCD (Warner) re: supplemental information regarding emission offsets

Exhibit 4A.8: Letter dated November 27, 2001 from Sierra Research (Matthews) to SJVUAPCD (Villalvazo) re: air quality modeling files

Exhibit 4A.9: Letter dated December 3, 2001 from Sierra Research (Matthews) to SJVUAPCD (Shekh) re: supplemental information

Exhibit 4A.10: Letter dated December 10, 2001 from Sierra Research (Matthews) to SJVUAPCD (Sheikh) re: additional information

Exhibit 4A.11: Letter dated December 11, 2001 from Sierra Research (Matthews) to SJVUAPCD (Warner) re: expedited permit review

Exhibit 4A.12: Letter dated December 20, 2001 from Sierra Research (Matthews) to CEC (Dockets Office) re: meteorological data (Docket # 23630)

Exhibit 4A.13: Letter dated January 8, 2002 from Sierra Research (Rubenstein) to CEC (Trask) re: SO_2 mitigation

Exhibit 4A.14: Letter dated March 1, 2002 from Sierra Research (Rubenstein) to CEC (Dockets Office) re: visible water vapor plume analysis (Docket # 4747)

Exhibit 4A.15: Letter dated March 5, 2002 from Sierra Research (Rubenstein) to CEC (Dockets Office) re: response to ARB comments (Docket # 24796)

Exhibit 4A.16: Letter dated March 19, 2002 from Sierra Research (Rubenstein) to Adams Broadwell (Stanfield) re: air quality modeling files

Exhibit 4A.17: Letter dated March 20, 2002 from Sierra Research (Matthews) to SJVUAPCD (Warner) re: project name change

Exhibit 4A.18: Letter dated March 21, 2002 from Sierra Research (Matthews) to EPA (Rios) transmitting duplicate copy of PSD permit application

Exhibit 4A.19: Facsimile dated March 21, 2002 from Sierra Research (Matthews) to Risk Science Associates (Greenberg) Re: Risk Assessment Printouts (Docket # 25120)

Exhibit 4A.20: Letter dated March 22, 2002 from Sierra Research (Matthews) to SJVUAPCD (Warner) re: carbon monoxide emission limits (Docket #s 24987, 25076)

Exhibit 4A.21: Letter dated April 17, 2002 from Sierra Research (Matthews) to CEC (Trask) transmitting Apr: 16, 2002 letter from Sierra Research (Matthews) to Risk Science Associates (Greenberg) re: Health Risk Assessment (Docket # 25317)

Exhibit 4A.22: Letter dated April 26, 2002 from Sierra Research (Rubenstein) to SJVUAPCD (Sadredin) re: Comments on Preliminary Determination of Compliance (Docket # 25444)

Exhibit 4A.23: Letter dated August 1, 2002 from Sierra Research (Rubenstein) to CEC (Trask) re: SO_2 mitigation (Docket # 26333)

Exhibit 4A.24: Letter dated August 9, 2002 from Sierra Research (Rubenstein) to CEC (Trask) re: revised construction impacts analysis (Docket # 26414)

Exhibit 4A.25: Letter dated August 19, 2002 from Sierra Research (Rubenstein) to CEC (Trask) re: CD-ROMs containing modeling files for revised construction impacts analysis (Docket #s 26479, 26516)

Exhibit 4A.26: Letter dated December 5, 2002 from Calpine (McBride) to CEC (Trask) re: emission reduction credit reconciliation for SJVEC and Pastoria Energy Facility (Docket # 26858)

Exhibit 4A.27: Letter dated December 16, 2002 from Calpine (Argentine) to SJVUAPCD (Warner) re: emission reduction credits for SJVEC and Pastoria Energy Facility

Exhibit 4A.28: Letter dated December 27, 2002 from Sierra Research (Rubenstein) to EPA (Broadbent)

Exhibit 4A.29: The 2002 California Almanac of Emissions and Air Quality, California Air Resources Board (April 2002) http://www:arb:ca:gov/aqd/almanac/almanac02/pdf/almanac2002

Exhibit 4A.30: Ozone data from California Air Resources Board web site (http://www.arb.ca.gov/adam/cgibin/db2www/polltrends.d2w/start)

Exhibit 4A.31: PM10 data from California Air Resources Board web site (http://www.arb.ca.gov/adam/cgibin/db2www/polltrends.d2w/start)

Exhibit 4A.32: Cole and Summerhays, "A Review of Techniques Available for Estimating Short-Term NO_2 Concentrations," *Journal of the Air Pollution Control Association*, Vol.: 29, No: 8 (August 1979)

Exhibit 4A.33: "Guide for Assessing and Mitigating Air Quality Impacts," SJVUAPCD: (January 10, 2002) http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI

Exhibit 4A.34: May 20, 2002 hearing transcript, Los Esteros Critical Energy Facility (01-AFC-12) http://www.energy.ca.gov/sitingcases/losesteros/documents/2002-05-20_TRANSCRIPT.PDF

Exhibit 4A.35: Fugitive Dust Mitigation Plan and Construction Monitoring Demonstration Plan, Los Esteros Critical Energy Facility (June 14, 2002)

Exhibit 4A.36: East Altamont Energy Center, CEC Staff Status Report and Errata (Oct: 11, 2002) http://www.energy.ca.gov/sitingcases/eastaltamont/documents/2002-10-11_FSA_ERRATA.PDF

Exhibit 4A.37: SJVUAPCD Final Determination of Compliance (Sep: 27, 2002)

Exhibit 4A.38: Letter dated December 5, 2002 letter from EPA (Broadbent) to CEC (Trask)

Exhibit 4A.39: General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990: U:S: Environmental Protection Agency: 57 FR 13498-13570

Exhibit 4A.40: August 26, 1994 letter from John Seitz (EPA) to David Howekamp (EPA)

Exhibit 4A.41: SJVUAPCD 2002/2005 Rate of Progress Plan, Section 3:4:3

Exhibit 4A.42: SJVUAPCD Database Screenshot and ERC History for Certificate S-1554-2

Exhibit 4A.43: SJVUAPCD 2002/2005 Rate of Progress Plan, Exhibit E

Exhibit 4A.44: Letter dated June 19, 2000 from EPA (Haber) to SJVUAPCD (Sadredin) re: Preliminary Determination of Compliance for Pastoria Energy Facility

Exhibit 4A.45: Letter dated July 31, 2000 from SJVUAPCD (Sadredin) to EPA (Rios) re: Preliminary Determination of Compliance for Pastoria Energy Facility

Exhibit 4A.46: Letter dated September 27, 2002 from SJVUAPCD (Sadredin) to EPA (Rios) re: Notice of Final Determination of Compliance for SJVEC

Exhibit 4A.47: 1994 Ozone Attainment Demonstration Plan, SJVUAPCD (November 14, 1994) http://www.valleyair.org/plans/OADP.pdf

Exhibit 4A.48: 2002 and 2005 Rate of Progress Plan, SJVUAPCD: (December 19, 2002) http://www.valleyair.org/Workshops/postings/12-19-02- 4/ROP%20Plan%20Nov02%20Final.pdf (note that web link is to final draft of plan; adopted plan has not yet posted to the SJVUAPCD web site)

Exhibit 4A.49: PM-10 Attainment Demonstration Plan, SJVUAPCD: (May 15, 1997) http://www.valleyair.org/plans/97.pm10.adp.pdf

Exhibit 4A.50: Letter dated September 27, 2002 from SJVUAPCD (Sadredin) to Calpine (Lamkin) re: Notice of Final Determination of Compliance for SJVEC

Exhibit 4A.51: Letter dated December 7, 2001 from SJVUAPCD (Warner) to Calpine (Lamkin) re: completeness determination for CVEC/SJVEC

Exhibit 4A.52: New AQ-C7: SB 28X Statutory Language

Exhibit 4A.53: Proposed Rules published in the Federal Register/Vol 68, No. 30 (February 13, 2003) 40 CFR Part 52

Exhibit 4A.54: Proposed Condition of Certification PUBLIC HEALTH-1.

Exhibit 4B: Noise

Exhibit 4B.1: Memo from Mark A. Blum, San Joaquin City Attorney, to Shahid Hami, San Joaquin City Manager re: Inapplicability of Noise Ordinance to Proposed Calpine Energy Center, March 7, 2002.

Exhibit 4B.2: Letter from Mr. Eugene Niboli to Mr. Matt Trask, dated November 4, 2001, Accepting SJVEC's Offer of Residential Sound Attenuation Program (Docket No. 27403)

Exhibit 4B.3: Letter from Mr. and Mrs. Floyd and Lillian Bastiani to Mr. Matt Trask, dated November 4, 2001, Accepting SJVEC's Offer of Residential Sound Attenuation Program (Docket No. 27404)

Exhibit 4B.4: Letter from Mr. and Mrs. Don and Thelma Irene Gragnani to Mr. Matt Trask, dated November 4, 2001, Accepting SJVEC's Offer of Residential Sound Attenuation Program (Docket No. 27580)

Exhibit 4B.5: Letter from Mr. Gerald B. Brown to Mr. Matt Trask, dated December 6, 2001, Accepting SJVEC's Offer of Residential Sound Attenuation Program (Docket No. 7579)

Exhibit 4B.6: Letter from Ms. Jill Burford for Mr. Sal Parra to Mr. Matt Trask, dated November 21, 2001, Accepting SJVEC's Offer of Residential Sound Attenuation Program (Docketed January 28, 2003)

Exhibit 4B.7: Letter from Mr. and Mrs. George and Carolyn Ayerza to Mr. Matt Trask, dated November 22, 2001, Accepting SJVEC's Offer of Residential Sound Attenuation Program (Docketed January 28, 2003)

Exhibit 4B.8: Letter from Ms. Josephine Gropetti to Mr. Matt Trask, dated November 4, 2001, Accepting SJVEC's Offer of Residential Sound Attenuation Program (Docketed January 28, 2003)

Exhibit 4B.9: Letter from Sheri Clark of Fresno County, dated August 19, 2002 (Docket No. 26484)

Exhibit 4B.10: Applicant's "Configuration" Table based on Staff's spreadsheet

Exhibit 4B.11: La Paloma Generating Project FSA, pp. 155 and 160

Exhibit 4B.12: Pastoria Energy Facility FSA, pp. 195 and 197.

Exhibit 4B.13: High Desert Power Plant, FSA pp. 127, 160, 163, 159 and 166.

Exhibit 4B.14: Document admitted as Staff's 2 Y

Exhibit 4B.15: Tesla Power Project PSA, Noise and Vibration section

Exhibit 4C: Visual Resources and Plumes

STAFF'S EXHIBITS

Exhibit 2: California Energy Commission Staff Assessment (SA) filed on July 16, 2002, and Addendum thereto, filed on December 24, 2002: Sponsored by Staff and admitted into evidence on February 18 19, 20 and 21, 2003:

Exhibit 2A: Pastoria Energy Facility Final Commission Decision, December 20, 2000, Case No. 99-AFC-7

Exhibit 2B: Final Determination of Compliance, dated September 26, 2002, for the San Joaquin Valley Energy Center

Exhibit 2C: December 5, 2002 letter from Barbara McBride of Calpine to Mathew Trask re: "Emission Reduction Credit Reconciliation for the San Joaquin Valley Energy Center (01-AFC-22) and Pastoria Energy Facility (99-AFC-7)"

Exhibit 2D: Magnolia Power Plant Application for Certification (01-AFC-6, docketed May 14, 2001), Noise Section Accurate Measurements of

Ultra-Low NOx Levels - Presentation by Wilfred Hung. (Slides-hung.ppt)

Exhibit 2E: Walnut Energy Center, Turlock Irrigation District (02-AFC-4) Application for Certification, Appendix 8, Attachment 8.1D-1

Exhibit 2F: Calpine's original and revised comments on the Inland Empire Energy Center Preliminary Staff Assessment Air Quality Section

Exhibit 2G: US EPA memorandum noting limitations of use of shutdown credits. July 21,1993 Memorandum from John S. Seitz, Director, Office of Air Quality Planning and Standards, Subject-Use of Shutdown Credits for Offsets (shutdown.pdf)

Exhibit 2H: Article-- On Normalizing DNL to Provide Better Correlation with Response, Paul D.Schomer, Schomer &Associates, Champaign, Illinois, Sound and Vibration, December 2002

Exhibit 2I: January 13, 2000 Hearing Transcript, Sunrise Cogeneration and Power Project, 98-AFC-4

Exhibit 2J: Spreadsheet: ERCIssues.xls

Exhibit 2K: Spreadsheet: Plant Noise levels.xls

Exhibit 2L: Document: SJVEC Mitigation Measures.doc

Exhibit 2M: Document: comparing "Power Plant Noise Limits (table format)

Exhibit 2N: Document: comparing "Proposed Noise Mitigation Measures" in CEC Siting Cases currently before the Commission (table format)

Exhibit 2O: Memo from Matt Trask RE: Staff's Response to Applicant's Proposed Changes to Conditions of Certification for the San Joaquin Valley Energy Center (01-AFC-22), dated February 11, 2003.

Exhibit 2P: Memo from Matt Trask RE: Staff's Response to Applicant's Proposed Changes to Conditions of Certification for the San Joaquin Valley Energy Center (01-AFC-22), dated February 13, 2003.

Exhibit 2Q: PM_{10} Trends Summary: San Joaquin Valley Air Basin.

Exhibit 2R: Russell City Energy Center, Presiding Member's Proposed Decision, Adopted September 11, 2002.

Exhibit 2S: Rob Greene Article presented at the 1996 Conference on Environmental Noise Control Engineering (April 14-16 in Alberta Canada) on "Using Acoustic Signature Analysis To Resolve Community Noise Annoyance"

Exhibit 2T: Rob Greene Article presented at Penn State University (Noise-Con 97) entitled "Noise Source Identification Using Acoustic Signature and Predicted Magnitude"

Exhibit 2U: Hand drawn chart by Jim Buntin showing ambient noise limits, L90 and Leq

Exhibit 2V: Hand drawn chart by Jim Buntin depicting the different noise levels proposed by Applicant and Staff

Exhibit 2W: Accurate Measurements of Ultra-Low NOx Levels - Presentation by Wilfred Hung. (Slides-hung.ppt)

Exhibit 2X: James M. Fields article: "Reactions to environmental noise in an ambient noise context in residential areas"

Exhibit 2Y: Staff Assessment Addendum Guidelines

INTERVENOR FREITAS

Exhibit 5: Videotape of Flooding of the Yuba Basin (1995)

Exhibit 5A Interoffice Memo from Rick Arndt to Bill Luce, et al. dated October 29, 1996; Memo from Robert Shaffer to IBR2DM20. 2FRO100. RARNDT, et al. RE: Gragnani Wetlands – Reply, dated July 23, 1996; Figure "1991 Cropping Pattern."

Exhibit 5B.1 Photo from Keith Freitas of a cogeneration plant in Chowchilla, CA

Exhibit 5B.2 Photo from Keith Freitas of a cogeneration plant in Chowchilla, CA

Exhibit 5B.3 Photo from Keith Freitas of a cogeneration plant in Chowchilla, CA

Exhibit 5B.4 Photo from Keith Freitas of a cogeneration plant in Chowchilla, CA

Exhibit 5B.5 Photo from Keith Freitas of a cogeneration plant in Chowchilla, CA

Exhibit 5B.6 Photo from Keith Freitas of a cogeneration plant in Chowchilla, CA

Exhibit 5B.7 Photo from Keith Freitas of a cogeneration plant in Chowchilla, CA

Exhibit 5B.8 Photo from Keith Freitas of a cogeneration plant in Chowchilla, CA

Exhibit 5B.9 Photo from Keith Freitas of a cogeneration plant in Chowchilla, CA

Exhibit 5B.10 Photo from Keith Freitas of a cogeneration plant in Chowchilla, CA

Exhibit 5B.11 Photo from Keith Freitas of a cogeneration plant in Chowchilla, CA

Exhibit 5B.12 Photo from Keith Freitas of a cogeneration plant in Chowchilla, CA

Exhibit 5B.13 Photo from Keith Freitas of a cogeneration plant in Chowchilla, CA

Exhibit 5B.14 Photo from Keith Freitas of a cogeneration plant in Chowchilla, CA

Exhibit 5B.15 Photo from Keith Freitas of a cogeneration plant in Chowchilla, CA

JOINT EXHIBITS

Joint-1: Clean and redlined version of COC VIS-2 as agreed to by Staff and Applicant dated February 20, 2003

Joint 2: Clean and redlined version of COC VIS-7 as agreed to by Staff and Applicant

Matters of Which the Committee Has Taken Official Notice

1. High Desert Power Plant, FSA section on Noise
2. La Paloma Generating Project, FSA section on Noise
3. Pastoria Energy Facility, FSA section on Noise
4. Tesla Power Project PSA, Noise and Vibration section
5. Appendix A, ISO's Reliability Must-Run Study Report, Fresno Area, Final Version